The Builder.

SATURDAY, MARCH 17, 1855.

WE have fallen somewhat behind in our report of papers read at the Royal Institute of British Architects, and must endeavour to supply the omission. Let us first say that the Queen has, by a letter from the Hon. Col. Phipps to Earl de Grey, approved and sanctioned the award of her Majesty's gold medal to M. Hittorff, architect, of Paris. Further, that a deputation from the Institute, consisting of Mr. B. Ferrey, vice-president; Messrs. J. J. Scoles and C. C. Nelson, honorary secretaries; and Mr. W. L. Donaldson, honorary solicitor, had an interview on the 10th instant with Sir Benjamin Hall, the President of the General Board of Health, on his proposed Health Bill. The chief points the Institute are endeavouring to get altered are, that surveyors and inspectors should be duly qualified, and should be incapable to perform works within their own districts; and if the building clauses are struck out, as Sir B. Hall in the House of Commons said he proposed to do, that the local boards should not be able to frame similar by-laws without there being a sufficient controlling party, such as the Board of Works, to sanction them. There are other points which they intend urging in committee referring to their professional duties.

On the 5th, Mr. C. C. Nelson gave a general account of Salzenberg's illustrated work on the "Early Christian Monuments of Constantinople, from the Fifth to the Twelfth Century."

The earliest remains of Christian buildings in Constantinople, if any of them exist, date from the first half of the fourth century, when, according to Du Cange, not less than 430 religious edifices, churches, chapels, and monasteries were raised in the city and its suburbs under the auspices of Constantine; but the difficulty of access to the mosques into which the Christian churches had been converted presented insurmountable obstacles to any satisfactory investigation, especially of Sta. Sophia, till the repairs in the years 1847-1848 afforded a favourable opportunity, and the King of Prussia despatched Salzenberg to the spot. Aided by Fossati, the architect employed, he was enabled to prosecute his researches, and take full and accurate measurement of that building and its details, as well as to collect other materials for the work in question, which forms a valuable supplement to the collection of views published by Fossati from drawings made on the same occasion.*

Following Mr. Nelson,—the largest portion of the work is devoted to Sta. Sophia; but various other buildings are also illustrated and described.

Though the buildings of Diocletian and Maxentius exhibit much skill in the construction of large vaultings, they show the extent to which art had declined at Rome and in the provinces. The hasty and probably slight construction, the numerous earthquakes, and human violence, have prevented any of those subsequently erected by Constantine in his new capital from enduring as examples to the present time. But the remains of Justinian's buildings bear evidences of the influence of the late Roman art during the first period of the Byzantine school. In them the Roman Corinthian and Composite orders are imitated, though with many deviations. The leafage is treated in an Hellenic rather than in a Roman manner—the tradition of older works previously introduced from Greece and Asia Minor. This peculiar acanthus-like treatment of the leaf ornament continues in works of the Byzantine school to the latest period, and something very similar may be observed in mediæval buildings of the west of Europe. Though the columns present an imitation of the attic base, deep and heavy members are introduced at each end of the shaft in place of the classic apophyge. Alterations in the proportions of the entablature and its divisions, the omission of the corona in the cornice, the overcharging the entablature with egg and bead enrichment and flutings—arches springing at once from columns, or the architrave curved to form an archivolt to the arches between them—these and many other licenses to be seen in the buildings of the late Roman school may be observed in those of the early Byzantine.

The first church dedicated to Sta. Sophia by Constantine, or his son Constantius (326-360), which appears to have been a Basilica after the Roman type, with a wooden roof, was destroyed by fire during a revolt A.D. 532. Justinian entrusted the erection of the new edifice to Anthemius of Tralles. It was commenced within forty days after the fire, and having been completed in less than six years was dedicated on the 26th December, 537. Security from fire was a condition strictly enjoined on the architect, which the vaulted construction has fully ensured to the present day, notwithstanding the numerous conflagrations that have occurred in the city.

Several remarkable deviations from the arrangement of plan observed in the earlier churches result from the particular kind of vaulted covering adopted, which consists of a cupola vault, supported over a quadrangular space by four equal semicircular arches or barrel vaults, corresponding with the sides of the square. The transition from the square to the circular form at the foot of the cupola is effected by means of gussets or pendentives, filling up the angles between the semicircular arches. The interior thus derives an imposing effect from the boldness of the vaulting, though the show of colour and of precious materials has been preferred by the Oriental Christians to correctness of form and execution in the sculptured enrichment. Columns of rare marble taken from ancient buildings, walls lined with many-coloured marbles, and vaults covered with golden mosaic—produce an interior to rival the painted walls and gilded ceilings of later basilicas. The walls and vaults are of brick. The external elevations are plain and exhibit the naked constructive forms, which divide the larger masses into portions, again subdivided and terminated by simple horizontal members. The external covering of the roof rests immediately on the vaulting.

Twenty-two years after the dedication, a violent earthquake having destroyed the eastern part of the cupola, Justinian caused it to be raised 25 feet; the counterforts were strengthened, and the interior was renovated. Since that time, notwithstanding the numerous earthquakes which have taken place at Constantinople in the course of thirteen centuries, the bold system of construction employed at Sta. Sophia has lasted well, and but few extensive repairs are on record.

After the fall of Constantinople, A.D. 1453, Mahomed II. destroyed the arrangements adapted to Christian worship, and dedicated Sta. Sophia to the service of Islamism. The effects of this change are, however, less visible in the interior than on the exterior of the building; the form of Mahomedan worship being simple, and consisting chiefly in the repetition of daily prayer. The mihrab, a niche indicating the direction of Mecca and containing the Koran; the minber, a raised stand from which the prayer for the Sultan is repeated on Fridays; the mahfil, a platform of moderate height from which the Koran is read; lamps for illumination during the *fête* of the Beiram; and a carpet spread over the pavement, constitute the requirements of a Dschami or place of meeting of the faithful to which at Sta. Sophia the Makssure, an enclosed elevated seat for the Sultan, has been added on the north of the space formerly appropriated to the clergy.*

The building had been much neglected of late years, till the present Sultan entrusted the work of restoration to Fossati, who not only carried out substantial repairs and removed many of the useless buttresses, but also effected a partial restoration of the ancient splendour of the interior: the marble work was cleaned and repolished, the golden mosaic vaulting freed from coats of whitewash, deficiencies supplied with gold leaf and ornament in oil colour, and only the personal representations on them forbidden by the Koran were again concealed to preserve them for future generations. The external face of the walls after the repair was stuccoed and painted with alternate bright yellow and reddish bands, to represent layers of stone in the style of Late Byzantine and Arabian architecture.

Sta. Sophia is situated near the Palace of the Seraglio, at the eastern extremity of the present town, where the original Byzantium stood. The apse of the church does not exactly face the east, but, as in most churches in Constantinople, it is turned somewhat towards the south-east, the direction of Jerusalem. The external main walls of the church enclose a space which is nearly square—the length inside, exclusive of the eastern apse, being 241 and the breadth 224 feet.† In the middle, four strong semicircular arches, supported on piers at the angles of a square space, carry the cupola. Between the four main arches in the centre pendentive vaults are introduced, which meet in a circle 100 feet in diameter. This circle forms a gallery at the springing of the great cupola, which there measures 104 feet across between the ribs, and rises at the crown to the height internally of 179 feet from the pavement.

The reader described the building at length: we must content ourselves with fewer particulars.

The materials used in the construction of the building are brick and a kind of peperino freestone, the latter where great pressure occurs, as in the four main piers of the cupola and the adjoining piers, and in those carrying the arched ribs in the side halls. A course of stone 2 feet high is laid about 4 feet above the pavement all round the building. The original external walls and vaultings are of brick: the later additions show alternate layers of brick and quarry stone. The Turkish counterforts are of wrought stone.

The main inclosing walls are about 70 feet high, and are 3 feet 6 inches thick on the north and south, 4 feet 6 inches on the east, and 5 feet on the west, between the nave and the narthex. The principal cupola appears at first sight to rest upon four arches, each 100 feet wide, but in fact only those on the east and west have that span, and on the north and south the real supporting arches are diminished in width to 72 feet, and only three-fourths of the circumference of these last arches has radiating joints, the parts next the springing being laid horizontally. The buttresses attached to the main piers on the north and south were at first only carried up to the spring of the great arches, and were concealed beneath the roofs over the side galleries, but after the fall of the dome they

* Aya Sofia, as lately restored by order of H. M. the Sultan Abdul-Medjid. Folio, London: 1852.

* Numerous authors, ancient and modern, have occupied themselves with the history and description of Sta. Sophia. Among the early Byzantine writers, Procopius, Paulus Silentiarius, and Agathias, contemporaries of Justinian, are alone deserving of confidence: the late Greek authors abound in fabulous narratives. Gyllius and Grelot visited the church in the seventeenth century, and Du Cange affords much valuable information in the Third Book of his Description of Constantinople.

† All the dimensions are given in Prussian feet, 100 of which are equal to 103 English, or 1 foot is equal to 1·03 English.

were raised by command of Justinian, so that they now are within 18 feet of the basis of the cupola, and form vast projecting masses, necessary perhaps for the stability, but certainly injurious to the external appearance of the building.

The cupola of St. Peter's at Rome is not seen with effect till the spectator is beneath it, and its supports equal half the space left free. From the central entrance-door of Sta. Sophia, the eye embraces at a glance the greater part of the interior, with the aërial cupola, the supports of which amount to barely one-tenth of the unencumbered space.

Of the three kinds of interior decoration employed, sculpture, marble linings, and glass mosaic painting (oil painting was not used, unless gilding the ornaments in relief be considered such), the first holds only a subordinate place, and is obviously not a main element of Byzantine art; but the marble decoration is in unison with the Oriental taste for show and glittering colours, which was gratified by the display of rare and precious materials, taken from ancient temples throughout the empire. All the walls of the interior of the church and narthex are lined, from the pavement to the vaulting, with slabs and bands of variously coloured marbles. In the church the mass is divided horizontally by two cornices of white marble, simple in profile and enriched with leaf ornaments, and a cornice is carried round the foot of the cupola. All the bands, as well as the panels, are surrounded by narrow borders of white marble, charged with fret work. The larger panels have wider borders of the same material, carved with ribbons and rosettes between frets and beads: by this means a marked division of the various marbles is obtained. Single friezes and panels are further ornamented by mosaic work, like the Florentine, representing leafage and tendrils, flowers, fruits, and animals. The arches and spandrils over the columns between the great piers in the nave are covered with relief ornament in white marble: on the upper floor these parts contain mosaic work of coloured marble. The ornament, which has a peculiar stencilled character, was once gilt, and the remains of deep red colour are seen in the sinkings. The walls of the bema are of the richest description, being almost entirely covered with slabs of marble mosaic: they formed with the barrel vault over them the arcus triumphalis, under which stood the gorgeous ciborium and the holy table. The walls of the adjoining apse, which contained the patriarchal chair and the seats of the priests, are less ornamented.

In obedience to the command that combustible materials should be avoided, the window openings are filled with bars of marble or stone, and the leaves of the doors were of bronze, or of wood covered with it. The larger window openings are subdivided by piers or columns with narrow architraves or transoms fixed midway in the height. Perforated slabs, 4 inches thick, form the window bars, which are about 3½ inches wide, and are splayed inwardly. The panes of glass * (originally cast singly), vary in height from 9 inches to 10 inches by 7 inches to 8 inches in width. The door dressings are of marble, with the exception of those belonging to the royal door which are of bronze. Of the bronze door leaves, those at the south end of the narthex are alone deserving of special notice. They are apparently formed of Hellenic work of the best kind taken from some ancient temple, with Byzantine additions to adapt them to the opening. The plates of bronze, ¼ inch to ¾ inch thick in the old part, ⅜ to ½ inch in the later, are fixed on leaves of wood 4 to 5 inches in thickness.

According to Paulus Silentiarius, the ambo was placed centrally between the main eastern piers, but advanced somewhat westward, and beneath it the singers stood behind a barrier. Behind the ambo, the solea, appropriated to the inferior clergy, occupied the whole of the space under the eastern half cupola, which was separated from the rest of the nave by a low divisional wall.

Mr. Nelson, after alluding to the discrepancies existing in different accounts as to the dimensions and other particulars of the dome or cupola of Sta. Sophia, expressed a hope that another evening might be devoted to domes, as much more might be said upon the subject generally; and he hoped, in reference to Sta. Sophia, they might have the benefit of Mr. Petit's researches on the question of Byzantine architecture, and its applicability in the present time. Mr. Garbett's work might also be consulted on the subject, as the author traced the change from the Roman style of cross-vaulting to that used at Sta. Sophia, and compared the cross or groined with the domical, and pointed out the merits and defects of each in a very clear manner. It would be interesting to consider the different modes of lighting domes; the ancient western example, the Pantheon, was lighted from the centre; the eastern ones from the sides; and the modern domes of Europe from the centre. He also showed how domes had been progressively heightened, from the proportions found in the Pantheon to those of the most recent building.

The internal decorations of Sta. Sophia, the magnificent clothing and completion of the carcase, were left in the hands of Mr. Digby Wyatt, and were treated of by him at a meeting held on the 19th. We shall give the substance of his address next week.

* It is doubtful whether the glass panes in the windows belonged originally to the building.

THE WEATHER-COCKS AND VANES OF THE LONDON CHURCHES.

SUCCESS and excellence in art depends in a great measure on attention to details. Some of our greatest painters, whose style became eventually remarkable for breadth and vigour, at the outset of their career were almost to a painful extent careful of the most minute details. The early drawings of Turner, the landscape painter, are curious examples of patient finish.

In architecture, attention to the hundreds of details which form the grand whole, is of great importance. Even without this remark, we think that the termination of "the heaven-directed spire" will be acknowledged by most as a matter worth considerable attention. On it depends whether or not the eye, after passing pleasantly over the bold masses of a building, the chaste and beautiful decorations, the pinnacles, turrets, and other portions, shall by the lofty spire convey the eye (pleasing it as distant music does the ear) to the clear sky.

Vanes were used in very early times; but there is little information on the subject to be found. In the indexes to the long range of volumes of the "Gentleman's Magazine," that most venerable of periodicals, which is still strong and hearty in its old age, we find, although almost every phase of antiquity is considered, there is little mention made of vanes or weather-cocks. A correspondent gives it as his opinion, that they were introduced during the time of the great French war, as a sort of emblem of the changeable opinions and movements of that people! Another correspondent replies, that the church weather-cocks are of more antiquity; and this is all we can find on the subject by an examination of the indexes of the publication alluded to. The "Archæologia" is in like manner scanty of information: all that we find there is the remark, that the cock is frequently introduced in the ornamental part of mediæval architecture as an emblem of watchfulness.

The Temple of the Winds at Athens had a vane. Chaucer (as quoted in the Oxford "Glossary") writes:—

> "O sterne people, vnsad and vntrue,
> Are vndiscrete, and changing as a *fane*."

Shakspeare only speaks of the *weathercock* twice in the whole of his plays; of the *vane* twice, and the *vane and weathercock* once. Evelyn, when journeying in Kent, says that the weathercocks were very numerous, and placed not only on the churches, but also on the farm-houses, barns, stacks of corn and hay, and on the large trees. He found sometimes on one tree several weathercocks, which he supposed had been placed there by the rustics at times of festivals and rejoicings.

It may be noticed, that at the period alluded to by Evelyn, when barometers for denoting the changes were not to be met with as now in every farm-house, the weathercock would be of considerable importance in agricultural districts; and it is probable that in out-of-the-way places there would be so little skill used in their manufacture, that a number might be necessary in order that a majority should inform the rustics *which way the wind blew*. Having stated this much respecting the origin of weathercocks, we leave the subject open to the ingenious remarks of our readers.

Many as are now the forms of the vanes on English churches, it would seem that an effigy of the wakeful chanticleer was the first pattern. We still meet with him on the old churches, barns, stacks, &c. in Kent, Somersetshire, and several other counties, and the village maypoles in parts of Gloucestershire, are still surmounted by the original weathercock. Since then the ingenuity of man has invented many devices for the purpose of showing the direction of the wind—arrows, greyhounds, horses, sportsmen, and other devices too numerous to mention. The London churches display a considerable variety, some by no means remarkable for their beauty (17, 18, and 19). No. 3, on the south transept of Westminster Abbey, is a good example, probably about the date of Henry VII. Nos. 8, 9, 10, may be taken as samples of the vanes on many of Sir Christopher Wren's churches. They are useful, plain, and commonplace. There are, however, several exceptions, for instance, the dragon on Bow (11), the gridiron on St. Stephen's, Wallbrook (14), emblematical of the martyrdom of that saint, &c. The portly-looking cock near the Guildhall (12), richly gilt, is a comfortable looking specimen, for the execution of which the artist had no doubt in his day the admiration of the ward. On the Church of St. Clement's Danes, the weathercock is ornamented with an anchor, the instrument of St. Clement's martyrdom. St. Clement is the patron of *blacksmiths*. "His quality," says Hone, "in this respect is not noticed by Brand, or other observers of our ancient customs, nor do they mention any observance by that trade in commemoration of his festival. But the following communication" (which we condense), "will show the estimation wherein he is held among the 'cunning workers in iron.'"

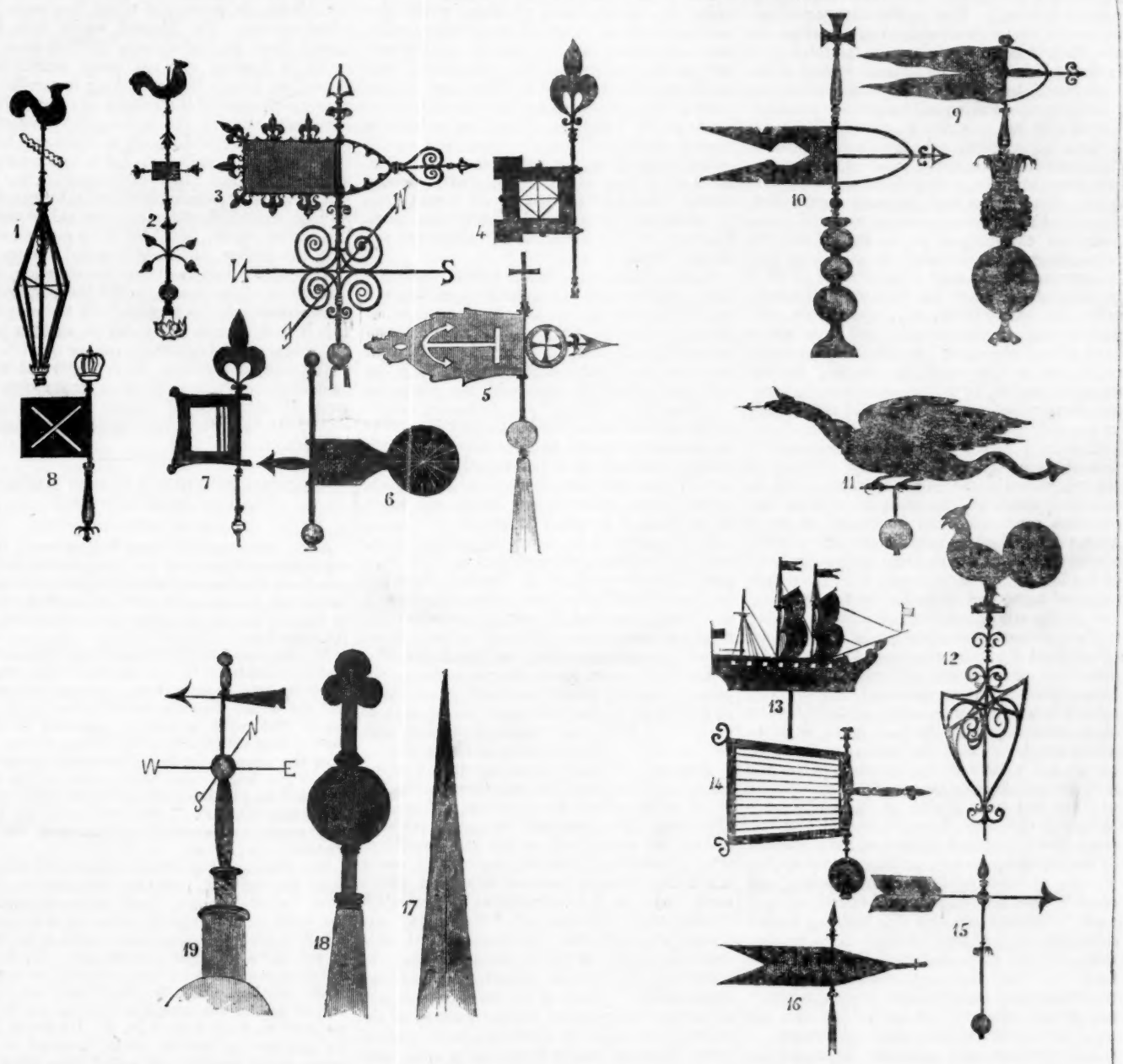
The secretary of the Benevolent Institution of Smiths jogs Mr. Hone's memory, and hopes he will not forget St. Clement's-day (Nov. 23), in the "Everyday Book." "When I was a child," says the secretary, "an old man went about in the trade, reciting the following ode on smithery, which I believe is very old." This ode would seem to be dated 1610. It begins—

> "By reading old authors you will find,
> The smithes have been a trade time out of mind;
> And it's believed they may be bold to say,
> There's not the like of them now at this day:
> For was it not for smiths, what would we do?
> We soon should lose our lives and money too."

The poet proceeds at some length to sound the praises of the smiths. Old Clem. then recites the following speech:—"I am the real St. Clement, the first founder of brass, iron, and steel from the ore. I have been to Mount Etna, where the god Vulcan first built his forge, and forged the armour and thunderbolts for the god Jupiter. I have been through the deserts of Arabia—through Asia, Africa, and America—through the city of Pongrove—through the town of Tipnings, and all the northern parts of Scotland. I arrived in London on the 23rd of November, and came down to his Majesty's dockyard at Woolwich to see how the gentlemen Vulcans come on there. I found them all hard at work, and wish to leave them well on the 24th."

Clement was a follower of the apostle Paul.

THE WEATHER-COCKS AND VANES OF THE LONDON CHURCHES.



It is said that he suffered martyrdom, and an anchor has been assigned to him as an emblem of distinction because, it is alleged, that he was thrown into the sea with an anchor round his neck.

It was curious to note, when making these slight sketches, how many eyes were directed by our own to the weather-cocks. Many of these persons seemed so struck with astonishment that a stranger would imagine they had seen them for the first time, and yet most of them had passed and repassed for years, and would have noted in an instant if one of the vanes should have been blown down by a storm; but the eye becomes so accustomed to things of daily sight, that they are seemingly unnoticed, and still day after day the taste becomes debased or raised by all that is reflected through the eye to the mind.

1. New Church, Margaret-street.
2. Do. Camden Town.
3. South Transept Westminster Abbey.
4. Houses of Parliament.
5. St. Clement Danes, Strand.
6. St. Mary's-in-the-Strand.
7. Houses of Parliament.
8, 9, 10. Wren's City Churches.
11. Bow Church.
12. Near the Guildhall.
13. St. Mildred's.
14. St. Stephen's, Walbrook.
15, 16. Common examples of Weathercocks in London.
17, 18, 19. London Church Termination.

FOOD AND ITS ADULTERATIONS.

THE SCIENCE OF SHAM.

HAVING within the last few years made some little progress in clearing away that *outward* filth which stands so much in the way of our projected Life *Assurance* Association, in which life for a century is to be the perennial profit, and health for a century the accordant bonus, in return for perennial cleanliness and good arrangement as the sanitary premium, it cheers us to see a prospect of progress also towards the realization of that *inward* cleanliness which must constitute an essential portion of the requisite *premium*, and ought to be specially seen to by proper authorities. Meantime, there are able sanitary labourers busily at work in preliminary inquiries, which will not a little hasten the happy era of health and long life. Of these labourers, amongst the most important is the Analytical Sanitary Commission of the *Lancet*, a commission which has advanced nothing in the way of assertion as to food-adulteration without special verification by microscopical and chemical science, and which, therefore, stands apart from almost all previous testifiers to the extent and prevalence of such adulteration, much of what had been previously written on this subject having been collected from hearsay evidence merely, and some of it based on mere suspicion, so that the subject as a whole was somewhat distorted, and occasionally exaggerated in certain points, and hence discredited, whilst in others little or no conception existed as to the extent and universality of malpractices affecting substances held till recently to be beyond the power of analysis, although from their vegetable nature or origin comprising an extensive and important portion of our daily food and drink.* The very difficulty of detection thus admitted on the one hand, and understood on the other, has till now afforded a tempting field for rascality, on which dishonest *manufacturers* and tradesmen but too eagerly entered, and from which they have already reaped but too much gain. Imagining themselves perfectly safe in such malpractices, they have not even rested satisfied merely to pass off adulterated articles as genuine, but not seldom have even had the consummate impudence to extol their spurious compounds as something of a most superior and ultra genuine description. Often, too, they have not only most unscrupulously adulterated their goods with immense proportions of spurious ingredients, but have even grossly adulterated these various ingredients, whether sold in deceitful combination or in a separate form, thus too, accordingly, often cheating the smaller fry of cheaters themselves.

Such being the state of matters until recently, the astonishment and confusion of these knavish manufacturers and traders may be conceived when they became aware, as many of them now are for the first time, that what che-

* "Food and its Adulterations; comprising the Reports of the Analytical Sanitary Commission of the *Lancet*, for the Years 1851 to 1854, inclusive." By A. H. Hassall, M.D. Longman and Co. London. 1855.

mistry had failed to do in the exposure of their hidden tricks, that important instrument,—the microscope, had proved itself to be perfectly capable of doing! This is the unexpected *eye-witness*, to whose penetrating investigations we are likely to be now indebted for the total overturn of a hideous and abominable system of imposture. Every different vegetable substance (and mineral as well indeed) has its own peculiarities of appearance, which completely distinguish it from all spurious accompaniments, such as those which so commonly exist in many necessaries and luxuries, including coffee, cocoa, tea, sugar, flour, arrow-root, tapioca, sago, spices, &c. And where the microscope may fail, there analytical chemistry steps in, and these two witnesses go hand in hand in unmasking that knavery which not only plunders the ill-filled pockets of the poor, but fills their stomachs with filth and rubbish, nay, not seldom with positive and deadly poison; and even where that is not the case, imposes on all articles which, while they ought to nourish, do but emaciate, and so, as well as otherwise, in many ways undermine the health of the rich as well as the poor.

It is by a steady and continued exposure of this villanous system that we hope ere long to see established a true *Excise*, if it may still be so called, which will maintain an efficient and constant supervision and inspection of every article in use for food or drink, for luxury or for medicine; with power to bring within the fangs of the law every evil-doer who robs the people either of money or of health by the manufacture or the sale of adulterated articles coming under any one of these four heads, if not indeed of any kind of article whatever, whether for internal use, or for mere external; for adulteration prevails to an enormous and most shameful extent in many other branches of trade besides those connected with the food, drink, or drugs of the people; witness the building trades themselves, and their spurious cements, paints and oils, &c.—their white leads made up with plaster of Paris, and their plaster of Paris with something still cheaper. It would be well, however, were white lead and plaster of Paris confined to the building trades: perhaps indeed confectioners, in erecting their elegant brides' and other ornamental cakes and confections, may rank themselves amongst the building trades, since they include amongst their usual building materials, not only plaster of Paris and white lead, but lime and clay, chrome lead, and numerous other *paints* of lead, copper, mercury, and arsenic, wherewith to attract the eye, and repel the stomach of the young and unwary.

Adulterations and poisonous impregnations are not the only evils connected with the food, &c. of the people which demand correction. The same authorities to whom the supervision of these ought to be committed, must, of course, be empowered to punish those who sell, or who manufacture for sale, unwholesome articles, even though genuine so far as regards adulteration. Nor do we restrict our meaning here merely to such substances as tainted meat, rotten hams, eggs, &c. stinking fish, &c. There are abominations of this kind which neither smell nor eyesight can reveal to the purchaser or consumer. Thus almost every specimen of raw or brown sugar examined by the Analytical commission to whom we have referred, was defiled by microscopic insects of loathsome form and aspect! In many specimens, the article under examination was infested with myriads of vermin, and it is actually believed that "the grocers' itch," got by "handling" sugars is produced by these insects, which, in fact, are closely analagous to microscopic insects which produce other kinds of itch. Flour is another article of great and universal consumption sometimes infested with a similar "mite" or *acarus*, though not to so appalling an extent as sugar seems to be; but flour has been suspected, when very old, to be the actual cause of deadly diseases attributed to epidemical, atmospheric, or other causes.

Though not usually subject to objections so disgusting as that of brown sugar, which is so often partaken of, either in a raw state, or without heat sufficient to kill the *acarus sacchari*, which survives even a pretty smart or scalding heat, bread is a substance exceedingly obnoxious to various most grievous, unprincipled, and objectionable tamperings. Thus bad flour is made to appear good, and dingy flour white, by an admixture of alum, which also enables the bread to absorb much water, and is hence extensively used by bakers and millers; and so deleterious is this admixture, that Liebig was lately induced to offer a sort of compromise by recommending the use of rice instead, which, it appears, absorbs or enables the bread to absorb still more moisture, and so still certainly to cheat the public in the weight of the staff of life—which is not *water*, essential as that "element" is—but at all events, thus to withdraw the positively deleterious alum. Potatoes are also much used to adulterate and cheapen bread.

Cocoa is another important article, possessing in its genuine state very nutritive qualities, and even esteemed by some medical men as an effective substitute for cod-liver oil in cases of consumptive disease, but which is vilely, or at least unscrupulously adulterated. This seems to be particularly the case with the numerous "homœopathic cocoas," a cognomen which would appear to have been satirically applied by the manufacturers in order to indicate that the article contained but a homœopathic or minute dose of the real cocoa in combination with the potato starch, mitey brown sugar, red ochre, &c. of which it is mainly composed.

As for coffee, it is notoriously still in many cases half chicory, which chicory is itself in as many instances made up of "roasted wheat and rye flours, burnt beans and acorns (pigs' food), burnt sugar, saw dust (!), mahogany sawdust (!!), carrot, or mangel wurzel!" and is nicely tinted with "ferruginous earths," or "black jack!"

Tea is in more senses than one often a *sloe* poison, elegantly painted of a lovely green, black, or blue by help of such innocent *blooms* as those made up of indigo and prussian blue, black lead, Chinese yellow, French chalk, or China clay.

Amongst the many (amusing were they not melancholy) instances of audacious knavery, by aid of which, with a due quantum of impudent effrontery, the cheapest or most rubbishy articles are palmed off on the rich invalid or other *bleedable* and believing customer, is one in which the changes have of late been pretty loudly rung on the taking titles "Revalenta," "Ervalenta," "Everlanta," "Relaventa," &c. a most invaluable and "astonishing," "health-restoring food," or farina, derived "from the root of an African plant somewhat similar to our honeysuckle." Each of the honest people who advertised this precious article declared all the others of course to be spurious,—to be made of mere beans and barley-flour,—or of some other similar common and contemptible ingredients. The principal firm, whom we shall call the *Do* Farina Company, *which* consists, it seems, of one German Jew, took the wind out of the sails of another of the tribe in a very clever way. This worthy colleague, if we may so call him, seeing that both were in league against the public pocket, though not in Co. had very knowingly procured an imposing chemical testimonial from a celebrated "analytical chemist," to the effect that his was the real genuine article. Messrs. Do Farina and Co. by dint of a double fee probably, and prepared specimens, *did* the poor chemist out of a similar genuine testimonial, and then exposed this, his own testifier, as a pecuniary humbug, thus completely neutralizing the credit which his opponent had derived from him. This chemical testificate system is very properly reprobated by the analytical commission, and in the present instance well it might be, for the microscope revealed to them the fact that the precious farina, sold "in canisters of not less than 5 lbs. each, price 22s." was no other than a mixture of bean or lentil meal and barley-flour, worth "about 2d. per pound!" It was to be supped with a syrup titled "Melasse," and which turns out to be nothing more or less than mere molasses, more commonly called treacle! Yet still the invalid and innocent public suck away confidingly at the African "honeysuckle" root, at the reduced price of 2s. 9d. per pound, and well lubricated with "Melasse" in "7s. bottles, carefully packed," and worth at least 3d. to 4d. per pound weight.

For the many thorough and salutary exposures of imposture thus effected, the public are deeply indebted to Mr. Wakley and Dr. Hassall in particular, and to the Analytical Sanitary Commission in general, of which they were the prime movers. Dr. Hassall states that the inquiry thus originated:—In 1850 he came to reside in London, and not many months had elapsed ere he saw that something was radically wrong with most of the articles of consumption commonly sold in the metropolis,—a distinguished compliment assuredly to sharp-set Cockney commerce,—and he was led to make certain microscopical and other investigations, the result of which he communicated to the Botanical Society, and which attracted some public attention; after which, Mr. Wakley communicated with the author, and had the moral courage to propose a thorough analytical investigation, and publication of the results, under the auspices of a commission to be appointed for the purpose. This investigation is still going on, and the present elaborate and important volume constitutes merely the first fruits. It is illustrated with numerous engravings of microscopic objects, many of which are of special interest, apart altogether from their bearing on the subject of adulteration.

RUINOUS BUILDINGS UNDER METROPOLITAN BUILDINGS ACT.

COSTS OF HOARDING.

A FEW weeks ago, Mr. John Day, the vestry clerk and assistant overseer of St. George's, Southwark, summoned the owner of some dilapidated houses in Mint-street, to recover the value of a hoarding erected in front of them by the parish authorities, under the Buildings Act.

Mr. Day stated that the houses in question were in such a dilapidated state, that they were really dangerous to the public passing them. A survey was made, and the houses were condemned by the district surveyor. The parish authorities, according to their sense of duty, erected a hoarding in front of them, and gave the owner notice to pull down within fourteen days. The houses were pulled down within that time, and the parish authorities removed their hoarding, which cost 12*l*. It was sold for 3*l*. and then they sought to recover the balance from the defendant.

Mr. Allen, for the defendant, contended that his client was not liable. The Act of Parliament, 41st, 42nd, and 43rd sections, clearly defines the liability. The parish authorities for the protection of the public placed up the hoarding, and sent a notice to his client to pull down within the fourteen days. He did so, and consequently had nothing to do with the expense of the hoarding. He (Mr. Allen) stated that a year or two ago he was engaged in a similar case for the parish of St. Anne, Soho, when Mr. Hardwicke gave his judgment against the parish, inasmuch as the owner of the property had pulled down within the fourteen days.

Mr. Combe, the sitting magistrate at Southwark Police-office, said he had communicated with Mr. Hardwicke on the subject, and after mature consideration he was of the same opinion. Had not the defendant pulled down the houses after receiving fourteen days' notice of condemnation, then the parish authorities could have pulled them down, sold the material, and reimbursed themselves for the expense of the hoarding out of the proceeds. The parish authorities certainly were, in a moral point of view, rather imposed upon, as it might seem proper that the owner should pay the expense of the hoarding erected around his own property, but that was their duty as protection to the public. Had the houses fallen, the blame would have rested on them, and they were bound to protect the public.

Mr. Day considered that the parish authorities were entitled to be reimbursed the sum they were actually out of pocket. The Act of Parliament never contemplated that the parish rates were to be expended in protecting ruined property, which was well known to the owners to be in such a state, instead of going to the support of the poor. He (Mr. Day) cited the different clauses in the Act, in order to show that he was entitled to the sum demanded.

Mr. Combe said the Act of Parliament was perfectly clear on the subject. The defendant had complied with it, and had nothing whatever to do with the expense of the hoarding. He must, therefore, dismiss the summons. At the same time, he must say that Mr. Day had acted very properly in bringing such a case before him, and had conducted it in an able manner.

It is difficult to believe that the views of those who framed the Act coincided with that taken by the magistrate, however the wording of the

Act may justify the decision. Section 40 makes it the duty of the overseers, on receiving copy of the district-surveyor's certificate of condemnation from the official referees, to shore up the building or put up a proper hoard for the safety of all passengers, and to give the owner notice to repair or pull down within fourteen days. If within the fourteen days the repair or demolition be not begun, they are "authorized and required" to cause such repair or demolition to be performed. Section 41 authorizes them, "with regard to any such such ruinous building *so pulled down*," to sell the materials, and to reimburse themselves for putting up the hoard, pulling down the building, and all other expenses; and section 42 enables them, "if the moneys arising from such sale be insufficient," to levy the amount deficient under the warrant of magistrates by distress and sale of owner's goods. The Act makes no provision beyond this for the recovery of expenses where no materials have been taken down and sold; and as, in the case above reported, the owner himself took down the building within the fourteen days, the magistrates decided that the overseers could not recover for the erection of the hoard. The correctness of this decision seems to us very doubtful. It could not have been intended that, because *all* the expenses were not borne by the overseers, *none* should be recoverable. It might be that the surveyor's certificate simply directed the shoring up of a building, and the insertion of iron ties; and that the fourteen days having expired, this had been done by the overseers. There would be no pulling down and no sale of the materials. Would Mr. Combe consider that in such a case the outlay could not then be recovered?

The parishes should get counsel's opinion on the point.*

ON THE SEWAGE QUESTION.

A VERY interesting and important paper was read at the Society of Arts on 7th instant by Mr. J. B. Lawes, on the Sewage of London, and was followed by an equally important discussion by various gentlemen well acquainted with the subject, although differing very much in opinion on it.

In the outset Mr. Lawes remarked that whoever undertakes to bring forward plans for the economical disposal of the sewage of the metropolis, is at once met by the difficulty arising from the enormous bulk of the material with which he has to deal. It is estimated that between one and two hundred million tons of fluid pass through the sewers annually; and it is said, that solid matter amounting to nearly 200,000 tons, is suspended or dissolved in this liquid. Those who advocate the employment of the sewage by irrigation, must therefore seek for an extensive tract of land at no great distance from London on which to deposit this fluid; whilst those who propose to separate from it a solid manure, must produce a substance of sufficient productive value to bear the cost of carriage to all parts of great Britain. Of late years much money has been uselessly expended in patents and inventions for converting the sewage into a portable manure, which might have been saved by a better knowledge of the true principles of manuring, and the wants of agriculture. The question farmers are beginning to ask is, *not* what is the price *per ton*, of this or that manure? But, in what manure can I most cheaply bring upon my land certain constituents which I require? The inability to answer this question satisfactorily has hitherto brought all the producers of sewage manure to a stand-still. Those who in future propose to deal in this manner with sewage, should consider well this question. The success or failure of their inventions will infallibly depend upon the answer they can give.

It should never be forgotten that it is the cost of carriage which regulates in a great measure the distribution of manures, and assigns to each a limit of area, beyond which it cannot profitably be employed. True economy in manuring consists in adding those substances to the land of which the supplies of the soil and atmosphere will be deficient.

Farm-yard manure is estimated to contain about ½ lb. per cent. of ammonia; or about 11 lbs. in a ton. It would therefore require about 17 tons of farm-yard manure to supply to the land the amount of ammonia used in an experiment to which Mr. Lawes adverted. Now, he continued, my farm is situated twenty-five miles from London, and being inconveniently situated for conveyance by railway or canal, the cost of carriage from London upon one ton of manure is fifteen shillings. Therefore, if I were to bring my 180 lbs. of ammonia from London in the form of dung, the carriage alone would amount to 12*l.* 15s. I could obtain the same amount of ammonia in half a ton of guano, or in 7 cwt. of sulphate of ammonia, at the cost of one half of the carriage alone of the dung. This example clearly shows, that it would be cheaper for me to give 10*l.* per ton for guano, or 14*l.* per ton for sulphate of ammonia, than to have the dung as a gift. In the case of the guano and the salts of ammonia, pounds weight only of manure are brought upon the farm to produce tons of growth; in the other you bring tons to produce pounds. Whilst I consider ammonia by far the most important and valuable constituent in an artificial manure, phosphoric acid is certainly the second in this respect. All my experiments lead to this conclusion; and it is, moreover, fully confirmed by the composition of all those manures in the market which have the most extended sale, and which are the most highly prized by the farmer.

Mr. Lawes then entered into a series of very elaborate statistical details on the subject of the actual nature and quantities of the several ingredients contained in the London sewage. The amount of the most important ingredients in course of one year, entirely freed from water, he estimated at 51,286¾ tons. Of this, he continued, about one-fifth is mineral matter; and the *nitrogen* it contains amounts to about one-sixth of the whole, namely, 8,859¾ tons, which is equal to 10,758¼ tons of ammonia. Now little more than half a cwt. of ammonia is the usual artificial dressing for an acre of cereal grain, and it might be calculated to yield an increase of crop of ten to twelve bushels of wheat, or these 10,758¼ tons of ammonia would afford a produce of about 600,000 quarters, if it could be conveniently applied for such a purpose. The intrinsic value of the sewage of London considered in this merely chemical point of view is therefore enormous. Indeed, according to the above supposition, it would return to the metropolis nearly one-third of the wheat consumed by its population. If, however, it were thus devoted exclusively to the growth of corn, it would, at the rate above mentioned, extend over more than 400,000 acres of land. But this ammonia in the sewage of London is unfortunately distributed through an enormous bulk of water, and Mr. Wicksteed has shown us how immense would be the cost of distributing this material over any enormous area of land in the liquid form.

This leads me to a consideration of Mr. Wicksteed's alternative of a solid manure. Mr. Wicksteed's method consists in adding a certain quantity of lime to the sewage, by which the insoluble and suspended matters, and also some small portion of those in solution, are carried down in the form of a liquid mud. This mud, after proper subsidence, is removed into a centrifugal machine, by the rapid revolution of which a certain portion of the remaining water is thrown off. The manure is afterwards further dried by exposure to a current of air in sheds. The value of this solid product Mr. Wicksteed estimates at from 2*l.* to 2*l.* 13s. per ton. He does not, however, give any analysis of it.

But we are not left to conjecture merely, as to the composition of a sedimentary sewage manure, such as that which would be the result of Mr. Wicksteed's process. Professor Way, in his valuable paper upon the composition of sewage, published in the Journal of the Royal Agricultural Society of England, has given us three analyses of manures made by adding charcoal and lime to sewage water, and in none of these does the ammonia amount to 2 per cent. whilst the average amount of phosphate of lime is less than 5 per cent. equal to about half that quantity of phosphoric acid.

Before purchasing any manufactured manure, I should sit down to calculate at what price I could purchase the constituents it contained? I find 1¾ cwt. Peruvian guano would supply all the nitrogen or ammonia, and the phosphoric acid of such a sewage manure; three or four cwts. of rotted straw would supply all its organic matter; and the residue I could obtain from the chalk and sand pits. Thus, for about 25s. I could bring upon my land the constituents of a ton of this manure, and for 30s. less money. Again, to supply the amount of ammonia put upon the experimental plot already adverted to, in 1854, I should require nearly seven tons of the sewage manure, at a cost, including carriage, of about 19*l.* I could obtain the same amount in seven cwt. of sulphate of ammonia, at a cost of 5*l.* Such, then, is the nature of the facts which lead me to the conclusion, that a *sedimentary sewage manure* cannot be profitably made by Mr. Wicksteed's process, or, I may add, by any known process.

There can be little doubt, that if the sewage of London is to be turned to some useful purpose, it must be applied in the liquid form in such quantities as to yield the greatest possible growth that land and season are capable of. *Grass* is the most suitable crop for the application of liquid sewage. But that its use, even for this purpose, should be attended with advantage, it must be employed in the most liberal quantities, that the capabilities of land and season will admit of; and, in this way, it is not impossible that in the neighbourhood of a large city a rental of 20*l.* to 30*l.* per acre might be obtained. Experience alone can decide what is the minimum area of land which would yield the maximum produce and rental from the sewage of London, but there can be little doubt that it would require many thousand tons of sewage per acre to yield the rental I have supposed. I may mention, however, that if 10,000 tons of sewage were annually applied to each acre, it would take about 20,000 acres to absorb the whole sewage of London, upon the estimate of 50 gallons per head per day.

In conclusion, Mr. Lawes remarked, that there would surely be no great difficulty in appropriating a few thousand acres at no great distance from the Thames to the purpose in question. And grass being the produce grown, so milk and cream should be the chief products obtained in return. Irrigated grass appears to supply food peculiarly adapted for the production of milk; and there are certainly few articles with which the inhabitants of the metropolis are so inadequately supplied. Whilst, therefore, they must be justly charged for the removal of the sewage on sanitary grounds, they might surely demand, that the cost should be lessened by a proper application of the sewage: and it appears to me, that a liberal distribution of it on grass is the most promising means of attaining this result.

The discussion was opened by Mr. Foster, the secretary, reading a communication from Mr. Wicksteed, in which it was stated that in a few weeks the works at Leicester would be completed, when quantities of manure sufficiently large to enable practical agriculturists to give practical opinions would be prepared, and which he should consider in a commercial point of view the best test of the value of the manure to be thus supplied.

Mr. Sidney said that on most points the experiments in irrigation with sewage manure in Lombardy were very far from bearing out the views of Mr. Mechi and Mr. E. Chadwick, and of these views he proceeded to speak, and was followed by Mr. Chadwick, who defended his own well-known opinions, and minutely criticised those of Mr. Lawes. He was followed by Mr. A. Morse and by Mr. Mechi, who briefly addressed himself to the subject in question in accordance with his also well-known views. Mr. F. O. Ward gave an elaborate sketch of his

* Touching "Ruinous Buildings," we may add as a note the following from a correspondent:—"A ruinous building in Clerkenwell, formally condemned by the district surveyor, of which a certificate of condemnation was duly forwarded from the office of Metropolitan Buildings to the overseers, has been suffered by the overseers to remain in a dangerous condition for two years and upwards, threatening the lives of the inhabitants, and a source of great loss and detriment to the adjoining property. Surely, sir, there must be some remedy in the form of a mandamus, compelling the overseers to act as '*authorised and required*' by the Act of Parliament. It is highly necessary that parishes should know the responsibilities that attach to them, and that they should take the requisite steps to be able to act on all occasions as 'authorized and required.'—AN INQUIRER."

own ideas, in which the separation of manure proper from rain-fall, &c. formed a special element. Bramah's great invention of the water-closet, he remarked, had originated the modern problem of the disposal of sewage manure, since it gave rise to a new requirement, that of an outfall for soil-water, to which purpose the rain-sewers came gradually and illegally to be turned:—

"The surreptitious pollution of the rain-channels, originally connived at as insignificant, had come at last to be recognised as a system. The recent introduction of a cheap form of water-closet for the use of the working-classes, had given to this system such a sudden and rapid extension, that attention had at length been called to the monstrous proportions of the evil; which, plainly stated, was the annual discharge of many thousands of tons of putrifying matter into the rain sewers, the brooks, and the river. Every step that we had made in this false direction must (in his opinion) be retraced. The dispollution of the river, the brooks, the rain sewers, constituted a chain of operations, the links of which were bound together by the logic of an irresistible necessity. This necessity might seem hard, but it was absolute. You could not divert into tunnels, nor master with pumps, half-a-dozen rain-swollen brooks: their flood-waters must rush into the Thames, and must carry thither whatever pollution you had turned into their channels. Dispollute the Ranelagh, the Fleet, and the other brook-sewers of London, and your main difficulties at once disappear; the purification of the river, and the utilisation of the sewage become comparatively easy matters."

The chairman, Colonel Chaloner, in conclusion said that "what was most satisfactory to his mind was, that no two opinions seemed entirely to agree, because, so long as the scientific men whom they had heard that night differed in opinion, it would be the interest of every man of common sense, and with brains in his head, to work out the subject for himself: at the same time, he hoped in the end they would come to something like a definite result." We are much afraid that we must not yet calculate on deriving pecuniary advantage from the sewage of London.

ARCHITECTURAL AND BUILDING MATTERS IN VICTORIA.

BUILDING has been very dull, little being done anywhere, but is beginning to brighten. Several large public buildings have been or are about to be commenced, viz. in Geelong, the Exchange (the cost of which will be 20,000*l.*), the town-hall (40,000*l.*), the court-house, post-office, and telegraph station. In Melbourne, no public building of any importance is on the *tapis*, with the exception of the Exhibition Building. This arose as follows. It being intended to send specimens of colonial manufactures and natural productions to the Paris Exhibition in 1855, it was deemed advisable to hold a preliminary exhibition in Melbourne previous to the transmission of the articles to France. Soon after the first announcement, applications for space became so numerous that the commissioners decided on erecting a special building for the purpose. They were met in the most liberal manner by the Government, who provided ground, and pay half the cost of erection, on the condition that the building is to become their property for the purpose of Government offices at the close of the exhibition.

In accordance with this arrangement, the building is more substantially built than usual. It is of wood, two stories (about 40 feet) high. It has a gallery all round internally, and is covered partly with a semicircular glass roof, on the ridge and furrow principle. It is altogether a very creditable production; and as it stands on almost the highest ground in Melbourne, it is visible for miles around.

Next comes, perhaps, the greatest work yet accomplished in Victoria—the Melbourne and Hobson's Bay Railway, opened September the 12th. This, the first line in the colonies, is about 4 miles long. The entire distance is nearly level, and where gradients have occurred (these very slight), it has been surmounted by the construction of the road-way, which is raised about 4 feet; the embankment composed principally of sea sand, with a double line of rails laid in the usual manner on longitudinal sleepers, no transverse sleepers being used. It is the usual narrow gauge. The premises, &c. consist of (commencing at Sandridge), a jetty 1,000 feet into the bay, a large locomotive department, and the usual station buildings, all finished. There is no particular engineering work until close to the Melbourne station, where the line crosses the river Yarra, on a viaduct about 500 feet long, built of timber, on the American lattice principle. The line here takes rather a sharp curve to the station in Flinders-street (close to the Princes-bridge), a rather handsome wooden structure. Here very extensive goods' sheds, &c. are in course of erection.

At present the company have but one locomotive and four carriages, all of colonial manufacture; but both engines and carriages are daily expected from England.

The line was opened by the governor, Sir C. Hotham, on September 12th, since when trains have been running regularly every half-hour. As yet the company charge but one fare, viz.—1s. 6d. each way. They have only first-class carriages.

At the top of William-street, Melbourne, is just finished the Electric Telegraph Station, built of brick, with stucco quoins, &c. in imitation of freestone. It has a tower and electric time-ball, which falls at one o'clock.

The telegraph itself extends from the wharfs and Custom-house; thence up William-street to station; thence to the Government-office, and from thence across to the flagstaff, a distance of about one mile. It is a single wire, on posts about 16 feet high.

Numerous handsome blue-stone stores and warehouses are springing up in Melbourne. Most of the principal streets are paved. On the right-hand side of Collins-street, nearly every shop has a handsome plate-glass window. Gas, too, is beginning to be used, made from oil by the consumers themselves. All these many and great improvements are the work of a short twelve months. There is no other country (except, perhaps, California) where so much enterprise is united to so much capital; consequently, no place but Melbourne could make such rapid strides: the only parallel is the city of San Francisco; and there the improvements, though equally rapid, are less substantial.

In Geelong, the principal work already in course of erection, is the St. Mary's Roman Catholic Church. This is a very fine structure; though of a most medley style of Gothic. The basements are very fine *blue-stone*; the rest above the ground line of freestone. The estimated cost is 112,000*l.*! Messrs. Cowden and Ross, architects.

The Geelong and Melbourne Railway Company are getting on very well, and quickly: the line is 46 miles long, and already 38 miles of it are under way by different contractors. Part of the permanent terminus, too, is erected, and in occupation for the engineer's and secretary's offices, board-rooms, &c.

At the corner of Mercer-street and Brougham-place, in Geelong, is the Terminus Hotel, just opened (Messrs. Snell and Kaweran, architects). It is of brick, three stories high, and contains forty-six bed-rooms, and eighteen other rooms, including ball-room, 96 feet by 23 feet. It is sumptuously furnished, and fitted up on the principle of the great New York hotels. The decorations and fittings from the designs and under the superintendence of F. T. Honey.

At the gold field of Balarrat, there is a move in the right direction. Storekeepers and diggers, as they "pile dust" (Anglicè—"make money"), have come to the conclusion that a weather-tight brick or wooden house is preferable to a *tent*; and hence many buildings are erecting at Balarrat, Boningong, and Meredith. Messrs. Snell and Kaweran have built at Balarrat a stone building for a branch bank of Australia; at Boningong a large hotel; and at Meredith they were the architects for "Watson's Hotel," (with the exception of the Exhibition building at Melbourne), the largest wooden building in the colony: it is three stories high, and contains twenty-nine bed-rooms, and eleven other rooms, forty stables and outhouses, and is built entirely of wood, except being roofed with corrugated iron.

Such is, up to the present time, a slight account of the building works going on in this colony. The markets are dull generally, but building materials command a ready sale. The labour market is overstocked; wages as follow:—Carpenters, joiners, bricklayers, masons, plasterers, and painters, getting from 20s. to 35s. per day. Quarries of excellent granite just opened, about six miles from Geelong.

F. T. HONEY,
Member of Geelong Architectural Association.

VALUE OF LAND IN LONDON.

A CORRESPONDENT, "C. S." is very much afraid lest the public should be misled by the statements we gave recently under this head, and assumes that the information was furnished "by a party for other objects than to inform and benefit the public." He says,—"If peculiar circumstances did not exist where such reported heavy ground-rents have been given or offered for building sites, in the City, how can we account for the fact that the old South Sea House did not produce, by public competition, 56,000*l.*?—decidedly a first-rate situation, being accessible both from Old Broad-street and Threadneedle-street, readily connecting it with the business of the Bank of England, of the Royal-Exchange, the Stock-Exchange, Lloyd's, and even of the Docks, and comprising above half an acre (with trifling exception, of equal value), all freehold, and its substantial buildings well adapted for a large banking or mercantile establishment, and all landlord's fittings and fixtures included! Also that some very commanding and newly-erected freehold premises, at the corner of Threadneedle-street, opposite the Royal-Exchange, within the last three weeks did not realise 15,000*l.*!"

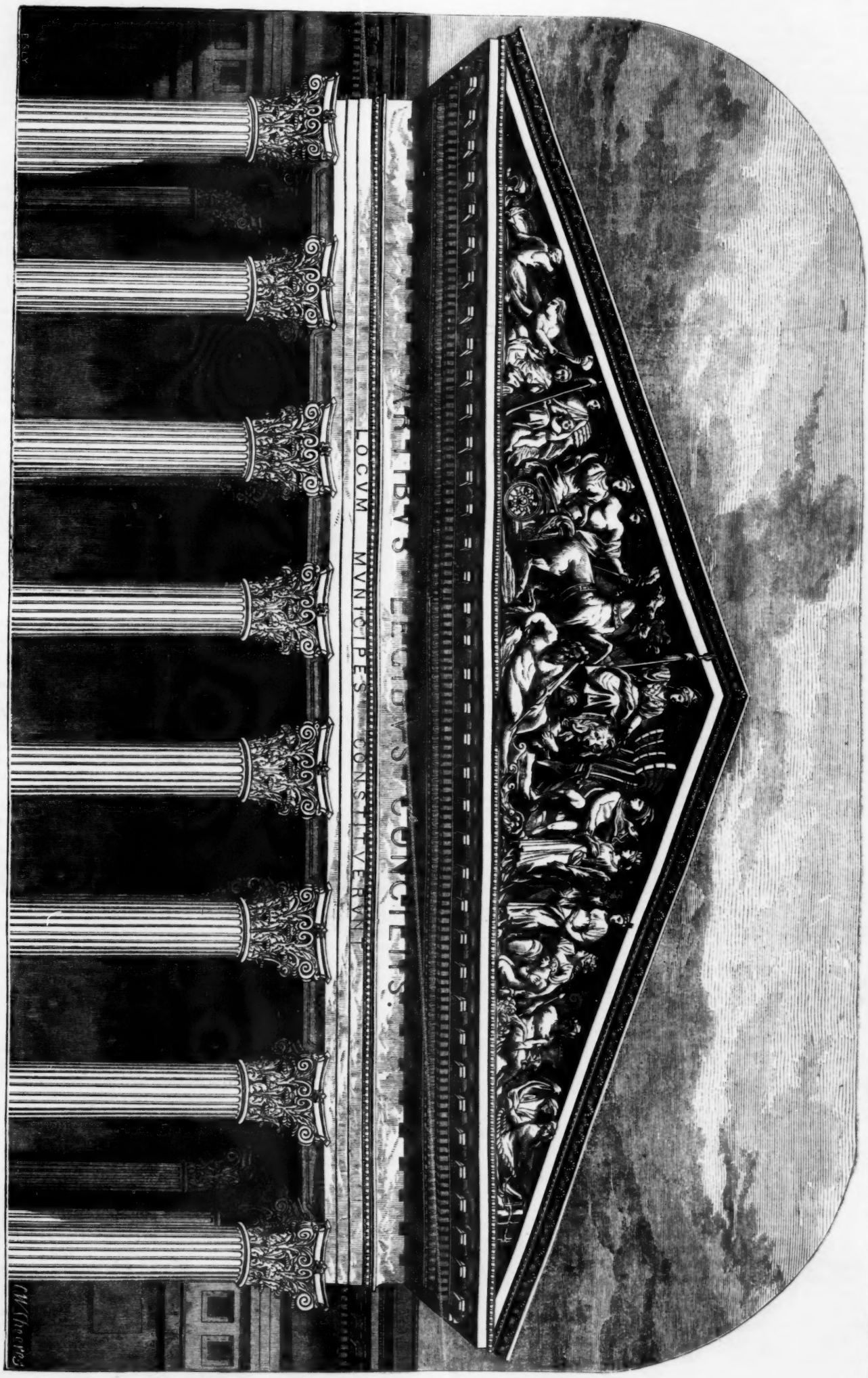
"C. S." may rest perfectly satisfied that no person with an ulterior motive had anything to do with the particulars given. They were collected by us simply for information sake, and, so far as we know, are substantially correct. Touching the published contradictions to which he refers, they do not affect the accuracy of the article in the least. As to the plot at the corner of Finch-lane, we merely mentioned the "report" that it had been let at a certain ground-rent, a report which appears to have been premature; while Messrs. Savory's land, as we stated last week, has been bought by those gentlemen exactly at the rate we estimated it at.

ST. GEORGE'S HALL.—THE SCULPTURE IN THE PEDIMENT.

THE sculpture in the pediment of St. George's Hall, at Liverpool, represented by the accompanying engraving, was designed by Professor Cockerell, and executed by Mr. Nichol. Although we have already described the intention of the group, it is desirable to repeat the particulars to prevent the necessity for reference.

Britannia armed, her lion by her side, and seated on a rock, forms the centre: she holds in her left hand the olive-branch, and in her right the spear. She hails the four quarters of the globe, presented to her by Mercury; the last of whom, Africa, inclines with the form of the pediment, and, with her negro children, acknowledges her obligations to the queen of freedom, who laboured so long and successfully for their emancipation: beyond are the vine and foreign productions. To the right of Britannia, Agriculture and the Arts, seated in a car, represent England and her productions; the husbandman and his plough, his wife with the distaff, and her child, express industry, manufacture, and domesticity: at the end are labourers at the anvil, the anchor, and the arms of mail, which she has not forgotten how to use. It is an admirable design and has been well carried out.

The same sculptor is executing four recumbent lions for the great pedestals outside. Their cost will be 200*l.* each.



THE PEDIMENT, ST. GEORGE'S HALL, LIVERPOOL.

PROVINCIAL NEWS.

Stamford.—The following were the tenders for re-pewing and restoring St. John's Church, Stamford:—Messrs. Richardson, 568*l.*; Mr. J. T. Jeffs, 639*l.*; Mr. Bradshaw, 625*l.*; Messrs. Chapman and Garnar (Leicester), 725*l.* Messrs. Richardson's tender was accepted by the committee.

Whitstable.—Tenders for erecting a new Independent chapel in High-street, Whitstable, have been opened. The amounts were as follows:—Messrs. Rook and Orpin, 1,161*l.*; G. Cozens, 1,055*l.*; J. Willson, 963*l.*; G. Crothall, 920*l.*; P. Ayres, 863*l.*; A. Baker, 855*l.*; J. Kelson, 844*l.* 19*s.* Mr. T. Marsh, the surveyor, had given the committee an estimate that the works might be done for 940*l.*

Oxford.—It is proposed to erect an epidemic hospital in the vicinity of this city. The Vice-Chancellor and the mayor have taken preliminary steps to that end.

Burslem.—The erection of the new town-hall proceeds but slowly. The late frosts much retarded the work, and now a strike it appears has taken place amongst the men. Previously to Christmas the masons were paid 4*s.* 6*d.* per day: then they were reduced to 4*s.* 2*d.* but were last week raised to 4*s.* 4*d.* and they now refuse to work unless at the old price.

Worcester.—A branch main is being laid down here, under the direction of Mr. Purchas, the engineer of the waterworks, for the purpose of supplying the Oxford, Worcester, and Wolverhampton Railway Company with water from the river Severn.

Bodmin.—The London committee for the erection of a monument to the late Sir Walter Raleigh Gilbert, Bart. have unanimously decided that the monument shall be erected on the beacon, at Bodmin. The beacon contains 17½ acres, rises 515 feet above the sea, and can be seen from Fowey to Padstow.

Cardiff.—The new church in the thriving suburb of Canton, the nave of which only has as yet been opened, was consecrated on the 6th inst. The style is Early Decorated, and the edifice is intended to consist of a nave, with north and south aisles, under lean-to roofs extending eastward so as to embrace the tower, which will be situated between the nave and chancel, and will be surmounted by a spire. Further eastward, beyond the tower, will be the chancel, with a sacristy attached on the north side. The nave will be divided on either side from the aisles by an arcade of four bays, having a clerestory above lighted with circular foliated windows. There will be an entrance doorway in the western end, with a large five-light window with geometrical tracery above, also a doorway and porch to both the north and south aisles. The tower, chancel, and side aisles are to be erected as soon as funds can be obtained. The cost of the present erection is about 1,400*l.* towards which 1,300*l.* have been subscribed, leaving a deficiency of about 100*l.* The nave accommodates about 250 persons. The nave arcades are temporarily filled with brick. The west walls of the aisles have been erected, so that the western façade is tolerably complete. The four-light window has geometrical tracery in the head: the columns which support the outer arch mouldings are of polished serpentine from Cornwall. The clerestory consists of three circular foliated windows, with deeply splayed and moulded inner jambs and sills: they are glazed with green and white cathedral glass. The roof is of Memel timber stained: each rafter being a principal, it is boarded above, and covered with Bangor slates. The passages between the seats are paved with Herefordshire tiles. The open pews or benches have sloping backs. The walls of the church are faced with granite, brought as ballast to Cardiff. The freestone is Combedown Bath stone. The architects were Messrs. Prichard and Seddon, of Llandaff, and the builders, Messrs. James and Price, of Cardiff.

Bridgnorth.—The new cemetery in the vicinity of this town is progressing, and will probably be opened by midsummer. The two chapels have been erected. These and the lodge were nearly finished before the late frost set in. The contract for the lodge and chapels was 1,200*l.*; the cost of land, 400*l.*; the laying-out, road-making, building of the walls, planting, and incidental expenses, about 600*l.* more; total cost, 2,200*l.* There will be a further outlay of about 100*l.* for extending the walls, which at present enclose two sides only. The trees have been planted, and the walks laid out and gravelled, and already the ground is quietly resorted to, for wholesome reflection doubtless, by many of the inhabitants of Bridgnorth and its neighbourhood.

Liverpool.—The Greek residents, it is said, are about to erect a new church here.——The new Palatine Club-house in Bold-street is in progress. The building was designed by Mr. C. O. Parnell, of London. Mr. J. Jordan, clerk of works. The contractors are Messrs. Jones and Jump, of Liverpool: their estimate was 8,500*l.* The building is being erected by the trustees of the Palatine Club, and will be ready for use by September next. It is in a very unfinished state, the only portion which approaches completion, according to the local *Journal*, being the front elevation or façade. The elevation is Italian. Rising to about 9 feet high from the pavement is a rusticated base, extending from one end to the other. In the centre is the principal entrance doorway, which will be rather plain. Above the base, eight three-quarter projecting Doric columns "coupled" spring, surmounted by the entablature. Between the columns are three square windows. Above this entablature six Corinthian whole columns rise, surmounted by a pediment, which is quite plain. Between these columns are three circular-headed windows, the key-stones of the arches being ornamented, and tending to support the entablature, acting as a kind of bracket or truss. Another story has yet to be completed, which will only consist of three square windows and a cornice. The whole height of the elevation is 35 feet 5 inches, breadth 56 feet, length 88 feet 5 inches. The stone was brought from Box, near Bath, and the base part is of Stourton stone. In the interior a great quantity of cast-iron work is used.

Coventry.—The following were the tenders for removing old galleries and pews in Trinity Church, Coventry, and reseating same in wainscot. Old materials to be the property of the contractors.—Highams, Wolverhampton, 4,095*l.*; Rattee, Cambridge, 2,850*l.*; Young and Co. Oxford, 2,800*l.*; Broadbent, Leicester, 2,485*l.*; Kingham, Ipswich, 2,327*l.*; Pratt, Coventry, 2,250*l.*; Taylor, ditto, 2,247*l.*; Marriott, ditto, 2,230*l.*; Robinson and Son, ditto, 2,196*l.* 10*s.* 6½*d.*; Hall, Nottingham, 1,950*l.*; Ruddle, Peterborough, 1,767*l.*

Clitheroe.—A meeting of the directors of the Clitheroe Waterworks Company was held on Wednesday in week before last, for the purpose of contracting for the construction of a service reservoir, and the laying of the pipes. There were eighteen tenders in all: three of them were made by resident contractors. There was a difference of upwards of 2,000*l.* between the highest and lowest tender. They were all rejected except four, which were very much alike, and which were retained for further consideration. The names are, Messrs. Webster and M'Guire, of Derby; Mr. William Knight, of Manchester; Mr. Robert Ibbotson, of Blackburn; and Mr. John Metcalf, of Bradford. The taker was to be declared in a few days. The works are required to be completed by 1st September. The contracts for the cast-iron pipes and earthenware pipes are progressing. The pipes are being coated, it is said, to prevent rust, and to keep the water pure.——A fire occurred in Whalley Church on Sunday before last. Although at one time serious apprehensions of its extending from the steeple, where it began, into the body of the church, were entertained, nothing but the steeple has suffered any injury. The fire originated in the higher part of an old flue, where an old beam had been built into it forty years ago and left unprotected.

Newark.—Among disasters attending the breaking up of the late frost, is the partial destruction of the new bridge over the Trent, at Kelham. It was erected only three years ago by the county, at a cost of nearly 3,000*l.* and was composed of wood, and supported by wrought-iron screw-piles and girders, with stone abutments. It is said to have always been considered a very weak structure, ill adapted to carry the heavy traffic passing over it, and withstand the rapid current of the river, which at that spot is very wide and deep. An immense sheet of ice, of many tons weight, floating rapidly down the Trent, came with great violence against the piles which support the end of the bridge next Kelham: four of the piles were instantly snapped asunder, and half of the bridge fell into the river. No person was at all injured, although several carts had only just crossed. It was feared the other portion of the bridge would fall, as the water was rising fast. It is hoped the county magistrates will cause a substantial bridge to be erected, and so abandon the "penny wise and pound foolish" system of doing things. The safety of the public would appear to demand it.

THE NATIONAL INSTITUTION, PORTLAND GALLERY.

THE exhibition of the National Institution of Fine Arts is now open in the galleries opposite the Polytechnic Institution, Regent-street; but we are unable through pressure on our space to give more than a brief notice of it. It includes 527 works of art, and although wanting in paintings of the highest class, is a very interesting collection. It is to be regretted that the president, Mr. R. S. Lauder, has devoted himself almost exclusively to landscape painting on the present occasion, notwithstanding the beauty which some of his works present. Mr. J. E. Lauder has a picture of large size and considerable merit, from the life of Sir Tristram and "la beale Isonde," where "Sir Tramtris learned her to harp, and she began to have a great fancy unto Sir Tramtris." Mr. Underhill has made a great advance, witness his "Sport in the Highlands," (107), and Mr. W. Cave Thomas has distinguished himself in two heads the size of life (86), "A Russian Dealer of the Gostvinorder," and (359), "Dealing in the North." Miss Howitt has an elegant though fanciful picture, in two parts, from Shelley's "Sensitive Plant," full of sentiment; and Mr. McIan has, what is, to our minds, the best picture he has yet exhibited,—(77), "The Battle of Stone Ferry." "A Coast Scene," by Charles Dukes (54), "Box Hill," by Stark (66), "Kilchurn Castle," by James Danby (104), "Orphans," by H. Barraud (116), "The Rendezvous," by J. D. Wingfield (125), "Shrimp Catchers," by T. S. Robins (142), "Autumn in the Highlands," by Sidney Percy (401), "The Haunt of Fallow Deer," by J. S. Raven (391), "Start of a Pleasure-boat," by W. Parrott (416), "The Matin Prayer," by Frank Wryburd, Mr. Provis's "Interiors," Mr. Duffield's "Fruit," and several others call for notice.

INSTITUTION OF CIVIL ENGINEERS.

COALS.

IN the course of the paper read February 27th, "On Steam and Sailing Colliers, and the various modes of Ballasting, &c." by Mr. E. E. Allen, the extent of the coal trade, particularly that of London, was examined, and tables were given of the areas of the coal formations of the different countries of the world, and the annual production in 1852.

The annual produce of England was stated to be estimated at 35,000,000 tons, and the quantity exported, about 8 per cent. of the quantity raised.

The areas of the coal fields in the United Kingdom gave a grand total of nearly 8,000 square miles.

The coal imported into London during the last three years was shown by the following table:—

	Coastwise.	Railway and Canal, &c.	Totals.
1852	3,330,428	411,821	3,742,249
1853	3,373,256	653,729	4,026,985
Excess...	42,828	241,908	284,736
	= 1·28 per cent.	= 58 per cent.	= 7·60 per cent.
1853	3,373,256	653,729	4,026,985
1854	3,399,561	979,170	4,378,731
Excess...	26,305	325,441	351,746
	= ·78 per cent.	= 50 per cent.	= 8·73 per cent.

EDUCATION IN HIGHGATE CEMETERY.

SOME years ago we used often to hear that "the schoolmaster was abroad," and I could not but think as I walked in Highgate Cemetery on Monday last, that he must indeed and literally have been abroad, or have been out of the way of forming an acquaintance with the letter-carvers of the tomb-sculptors' yards of the great metropolis. It is a pity that the "sculptors" who furnish the majority of these sad mementos of the dead do not attend some night-school for three months, that they might know a little of spelling, syntax, and punctuation. I do not think it necessary that they should be so profound as Dr. Johnson, but it is very desirable that they should be able to execute an order in such a manner as shall not offend the eye and vex the temper of the poor mourner who visits the narrow home of some dearly loved friend. Passing over the fact that the deviations from stereotyped ugliness and common-place absurdities, found by hundreds in all our cemeteries, are few indeed and far between, the eye has little relief in seeking for change from form to sentiment. The stock epitaphs are repeated *ad nauseam*, whilst vulgar conceits, and sickening and unmeaning flattery, join with bad spelling, false grammar, and wrong punctuation, to render the visit, instead of being one of melancholy pleasure, a painful and disgusting task. The loveliness of the situation is forgotten, the still repose is marred and broken by the obtrusive, staring vulgarities and the world-speaking blunders which meet the eye and offend the sense wherever it turns. Rest there is none, for nearly every slab has a trumpet tongue "to damn its carver's name or sense."

For example, I quote only the following from hundreds of instances that may be cited in Highgate Cemetery.

"Here *lies* the *two* children;" "she *dy'd* in the Lord;" "the remains of 2 children *is* interred;" "her remains *is intered;*" "*liveing;*" "of this *parrish;*" "who was *kiled,*" &c. &c. On a slab in the sarcophagus belonging to a wealthy city merchant, is a very touching and beautiful inscription, marred by "*humble*" being engraved for "*humbly.*"

Let these examples suffice; and I hope that by the medium of your journal, the attention of those in the proper quarter may be excited, and a change for the better in every way be effected, by a reform in the shops of these so-called *sculptors.*

A WALKER AMONG THE TOMBS.

COMPETITIONS.

KING'S LYNN.

WE are informed that the competition for the chapels, &c. for the new burial ground of St. Margaret's parish has been decided in favour of Messrs. Aickin and Capes, of London. We have received complaints of the hasty manner in which the drawings were examined. The "Instructions" shewed a strange confusion of the functions of architect and builder.

INSUFFICIENT TIMBERS.

IN any New Building Act a clause should be inserted giving the district surveyor direct control over these,—not now the case,—his powers extending only to walls and roofs and their materials.

In the case of a corner shop, a heavy quoin is supported by two strong posts composed of two deals. I saw a case the other day, brick piers having been removed, and these two insufficient posts placed in their stead, to carry out some alteration. The posts had buckled with the weight: reply of builder to objection: "Amply sufficient, sir, for anything; could not see any buckling; might perhaps wind a little." It must be borne in mind that the surveyor has no power or authority to *interfere* in this case, any jobbing carpenter determining to the best of his judgment the scantling of timbers,—the smaller the scantling necessary the better for his pocket, if he has contracted for a certain amount.

Another defect in the Act is, that all parts of buildings, rear fronts as well as fronts, chimneys, in whatever position, ruinous workshops and outbuildings, in rear of premises, do *not* come within the scope and meaning of section 40, which apparently considers dangers to *passengers* only, does not take account of *inmates* or *adjoining owners* or *workmen* employed in various trades and callings. Notwithstanding all these remediable points, the Act has, on the whole, been a great public boon, if only considered as in the avoiding of the enormous mass of litigation that must have ensued from the conflicting interests of adjoining owners and properties, now so easily arranged by a reference to the surveyor and the official referees.

AN OBSERVER.

BUILDERS' RESPONSIBILITIES.

ELLIS *v.* PETERS.

IN this case the plaintiff was a builder and the defendant an ironmonger, at Peterborough, and the action was brought to recover compensation for injury which a building belonging to the plaintiff had sustained, in consequence, as he alleged, of the defendant's negligent and improper construction of a gutter of galvanized iron, which went round the outside of the roof. The building in question was a large one which the plaintiff had erected at Peterborough for the purpose of public lectures, balls, concerts, and meetings; and the project originally was that it should be built at the expense of a company to be formed by the inhabitants, with a capital of 2,500*l.* in 1*l.* shares; but this scheme failed, and the speculation became exclusively the plaintiff's. He employed the defendant to make the iron roof, and, when that was completed, to surround the building with a gutter of galvanized iron, to carry off the water. The building was opened in the summer of 1854, and not long afterwards the wet began to make its way through the walls, and eventually did considerable damage. No complaint, however, was made to the defendant until late in the year, when other disputes had arisen between the parties, and now the defence to this action was, that the injury had arisen not from any negligence on the part of the defendant in the manner of doing the work, but in consequence of the insufficient description of gutter which, for the sake of economy, the plaintiff had adopted. Several witnesses were examined on each side, and in the end the jury found a verdict for the defendant.

WAR APPLIANCES.

CONSIDERABLE progress is being made with the camp at Aldershot. The site is about three miles from Farnham. The nearest station from London is Farnborough. We understand the contractors have undertaken to have 1,200 huts ready by the 1st of April, each at a cost of 100*l.* and capable of containing twenty-five men. A writer in the *Morning Herald* says:—"These huts are made of Canadian fir, just cut out from the balk, and are put together without any preparation or seasoning, and being exposed to the torrents of rain usual at this season, will become in a very short time perfectly saturated with wet. The consequences will be, that the action of the summer's sun will shrink, rend, and split the wood, so as to render them altogether unserviceable and untenable." There are now about 800 mechanics and labourers employed in erecting huts, draining, and road-making, and many more are advertised for. The permanent camp, to be built of brick, is to be three years in construction, and is to be formed on the other side of the range of hills before mentioned, facing the road along which the temporary quarters for the officers are being erected.——In the recent debate on the Ordnance estimates Sir Joseph Paxton found considerable fault with the course which had been adopted touching the works here. He said he found that not a single thing had been done towards that object, not even a tender sent out earlier than the 22nd January last. On that day advertisements came forth from the Ordnance Office at Portsmouth, calling for tenders for the erection of huts for 20,000 men; the tenders were to be sent in on the 31st of January, and the huts were to be completed on the 31st of March. Now, it struck him as a very extraordinary thing, that the Board of Ordnance had only given six weeks' notice for the erection of huts to contain 20,000 men: and on entering into some calculations as to the amount of labour to be employed in the erection of the huts, he found it would require 150 trains per day to take the required quantity of wood to the spot, reckoning from the time the tender was sent in to the period when the work was to be completed. That was to say, materials amounting to between 500 and 600 tons per day were to be fixed and placed in position within a period of six weeks. Again, these huts were to be formed principally of yellow Christiana deal. Now, if the hon. gentleman (Mr. Monsell) would inquire of any timber merchant in London, he would find there was not sufficient yellow Christiana deal in Great Britain to complete that number of huts. So that, quite independent of the extraordinary shortness of the period allowed for the erection of the huts, he defied the Government to procure them of the material specified.——The *Horatio* steam frigate is preparing, at Sheerness, to receive two of the monster mortar guns invented, and it would now appear already constructed, by Nasmyth. These guns are 10 feet 6 inches long, and in diameter at bore, 13 inches; muzzle, 31½ inches; base, 40 inches. The weight of each is about 23 tons. It is slung on Captain J. Roberts's plan, and will throw a solid spherical shot of 302·4lbs. with a charge of 30lbs. of powder.——The construction of the bomb-proof iron-cased floating mortar-vessels has been kept very quiet, but we now learn that they are of exactly the same construction as the broadside iron-cased batteries carrying sixteen Lancaster guns. The upper deck is so strengthened as to bear the weight of the heavy piece of ordnance with which it is armed. These mortar vessels, it is said, will throw bomb-shells a distance of four miles! With their guns, ammunition, and stores on board, the floating batteries will only draw 20 feet of water, so that the whole fleet of *forty* vessels can approach within a comparatively short distance of any of the marine Russian fortresses. Their cost has been enormous. A fleet of English and French line of battle ships and smaller craft will accompany them. The mortar batteries are each 70 feet in length, 23 feet in width, and 9 feet four inches in depth. Several of these mortar batteries will be attached to the fleet of forty floating batteries propelled by steam. Their construction in the hull is the same, and their decks are bomb-proof. That they are destined for the Black Sea as well as the Baltic, we are still hopeful, though no official hint has even yet appeared to that effect that we are aware of. The British fleet for the Baltic will consist, it appears, of no less than a hundred vessels, every one of them propelled by steam.—— Messrs. Losh, Wilson, and Bell, of the Walker iron works, Newcastle-on-Tyne, have entered into a contract with the Admiralty for the supply of between thirty and forty thousand bomb shells. They are to be of 10 inches diameter, and weigh about 63lbs. each.——A large fourgon, containing a printing press for the Crimea, has been embarked on board the *Empress* steamer at Lyons. On it was to be seen the inscription,—*Armée d'Orient, Imprimerie Impériale.* Two of the best compositors of the Imperial printing establishment of Paris accompany it. This is rather an unexpected step for our allies to take in advance of us.

A HAND-RAILWAY.

SOME time ago I suggested a hand-railway, that could be arranged in working order, at the rate of six miles of railway in one hour, and over which deal timber could be passed at the rate of four miles of timber in one hour. This might have saved thousands of lives if in operation for a few hours between Balaklava and Inkermann; and as, with slight modifications, it would be useful for other purposes, I beg to explain how the timber might have been passed in the case alluded to. A common "office ruler" will give a good idea of the sort of thing to be used. Old musket barrels would have done, and they would have had the advantage of being ready. An experiment has been tried by passing timber over common iron bolts, which was done readily, so as to prove the correctness of the principle. The recurrence of such cases as that at Balaklava might be effectually guarded against by preparing small iron rollers to revolve in wooden handles, lined with iron: by this simple means you would have a portable hand-railway, over which not only timber but many other things might be passed. Each handle to the rollers should have an iron guard, or shield, to protect the hand of the person that held it, and guide the timber on its path: the handles should be held in the left hand of each person, and the timber slightly pushed with the right hand, and thus at least four miles of timber per hour might be passed any distance that the men available would extend over if standing in pairs, so as to hold the rollers 4½ feet apart.

BARUGH ALMACK.

THE GREAT BELL OF ST. PAUL'S.

I FEEL obliged, as I am sure do your readers generally, by the courtesy of the Messrs. Mears, in supplying the information contained in your last number, forming, as it does, a valuable contribution to our campanalogical statistics. The discrepancy which startled me proves to have proceeded not from an under-stating (to any important extent) of the weight, as surmised by me, but an over-stating of the diameter; and this, not in Mr. Dent's essay. The 9 feet, I find, is repeated in Mr. Timbs's "Curiosities of London." In that interesting volume, at page 39, are given the particulars of the Great Tom's history, removal from the "clochard" at Westminster, re-casting in 1716 (which it appears should be 1709), and all about the sentinel at Windsor, who did not go to sleep on his post, but was only rapt in a brown study, from hearing Tom (then at Westminster) strike thirteen. There is also the following paragraph, which explains the fulness of tone heard when the hours are struck:—

"The same hammer which strikes the hours has always been used to toll the bell on the occasion of a demise; but the sound produced on the latter occasions is not so loud as when the hours are struck, in consequence of the heavy clock-weight not being attached when the bell is tolled, and causing the hammer to strike with greater force than by manual strength."

St. Paul's Great Tom, then, measuring but 6 feet 9½ inches in diameter, and weighing but 5 tons 4 cwt. while that for Sir Charles Barry's clock-tower is to be about 9 feet in diameter, and between 14 and 15 tons, the descendants of Dick Whittington and John Gilpin must confess that Westminster is again going to "bear the bell." J. W.

THE ART-UNION OF LONDON.

We would direct attention to the fact that the subscription lists of this important corporation will be closed on the 31st, with the hope that we may induce such of our readers as are interested in the progress of the fine arts and the welfare of artists to exert themselves in its favour while there is time. A strong effort is needed at this moment of general depression when individuals are less likely than usual to be purchasers. The works to be distributed to each subscriber, a fine print and a volume of engravings in illustration of Childe Harold (of which more hereafter), are now ready, and are worth much more than the whole amount of the subscription.

ROAD MAKING.

In a paper read to the Society for Promoting Public Improvements in the Town of Leeds, by Mr. J. P. Smith, surveyor of the borough of Birmingham, "On Macadamised Roads for the Streets of Towns," the lecturer said he had had under his management for many years 150 miles of street road, and the general superintendence of 180 miles of turnpike road, and the result of his experience was that he was confirmed in his opinion that broken stone, or Macadamised roads, if properly constructed and managed, are better adapted for the streets in large towns than any other description of road. It was essential that the foundation of a road should be of a firm material, well consolidated, and perfectly drained; if not, it became rough and uneven, and very soon required repairs. The next thing was to cover it with hard stones, impervious to water, broken to a proper size and laid out at a proper cross-section. The stones should then be dressed or bound with a coarse grit, which in dry weather should be watered and well raked. Under no circumstances should a road be permitted to be worn down, but it should be continually kept in repair. It was also very necessary that roads should be regularly swept and watered in dry weather, so as to prevent any accumulation of dust and dirt. The great objections which had been urged against Macadamised roads was the annoyance of dust and dirt which they were said to occasion, and many persons would prefer submitting to the deafening noise of the pavement. There would be no occasion of complaint, however, against dust and dirt if machine cleansing were adopted, and the expense would soon be saved in the diminished cost of repairs. In Birmingham there were about 150 miles of street and carriage road, and he understood about the same extent in Leeds. He had made an estimate of the probable cost for the present year, founded on the actual cost of the preceding year, and he believed that it would also apply to the borough of Leeds. It appeared from the estimate that the cost of maintaining the 150 miles of road would be about 34,000*l.* but the sum also included 11,600*l.* for lighting. Mr. Smith recommended that in making a road a substratum of ashes should first be laid down, and that should then be covered with the broken stone, which was called "ragstone," and which might be obtained in Birmingham for about 5s. 4d. per ton, or 6s. 8d. per ton broken, and then covered with the channel sweepings, and upon that might be laid a sprinkling of sand. In making Macadamised roads he would not have any large quantity to be commenced at one time, but the work should be done gradually, and the streets continually kept in repair. Macadamised roads were first commenced in Birmingham about seventeen years ago, and now he believed Mr. Smith stated that in the estimate to which he had referred was included the purchase of sixty-three horses, and also twenty sweeping-machines and 1,200 gallons of water, which in Birmingham they could purchase at 6d. per 1,000 gallons. The sweeping-machines and horses were never idle, but could be employed both in wet and dry weather. The average cost per yard per annum of maintaining a Macadamised road, including the watering and cleansing, he calculated at 8d. per yard; and, in Birmingham, paving would at least cost 15s. per yard, and would require to be renewed about every fifteen years.

THE LITERARY SOCIETY OF JERUSALEM.

Some of our readers may not have heard of this society. It was instituted by a few friends assembled in the City of Jerusalem, in November, 1849, who after some years residence in the Holy Land, were convinced that there are manners, literature, antiquities, &c. existing around them, which would highly interest the learned in Europe, especially those who attach themselves to biblical studies; and were of opinion, that instead of merely detailing these in correspondence to their friends, as anecdotes or descriptions, it would be better to concentrate such information in such a mode as would make it generally accessible. Weekly meetings were therefore appointed for reading original papers, and for the exhibition of curiosities. A few fundamental rules were laid down, from which other regulations have since been developed according to circumstances, and literary contributions, or specimens of natural curiosities, were solicited from European or American gentlemen residing within the Holy Land. These gentlemen were elected corresponding members.

Some collateral advantages are expected to arise from this association, such as affording intellectual recreation to European travellers to the country, the number of whom is on the increase, and the possibility of augmenting the number of European residents in Jerusalem, by which means more of the benefits of civilization will be diffused among the native inhabitants.

His Grace the Archbishop of Canterbury is patron: the vice-patrons are the Right Rev. the Anglican Bishop of Jerusalem, and the Right Hon. the Earl of Aberdeen: the president is Mr. Finn, H.B.M. consul for Jerusalem and Palestine.

In the opening address of the latter, for 1850, which has been printed at the American press, Beyroot, and again at Tenby, in England, he says:—

"Permit me to mention one subject more that may be properly brought within our province, viz. that of the fine arts,—architecture, painting, sculpture, and music; and these may be divided into three sections, or periods,—

1. Hebraic.
2. Grecian, under the Ptolemies and the Herod family.
3. Mohammedan, from the middle of our seventh century till the present day.

A question often arises in my own mind which, though easily answered by the coherence of Moslem fanaticism, or Maccabean righteous zeal, still dwells upon the thought with some degree of interest. What has become of all the Greek and Roman statues of fabulous divinities, and the busts of celebrated men, that have been set up in Palestine? And why are no mythological figures ever found upon ancient pottery? But it should be observed, that relics still survive of (it is believed) Hebrew architecture, with rich floral embellishment; not to mention Saracenic public works, sufficient to prove that gods of wood and stone, however perfected by genius, are not absolutely necessary to the development of fine taste, in a prosperous and happy nation. Music, too, and poetry have reached their highest extension within this city. Certainly no heathen idolatry has been ever found to institute such a costly and elaborate worship by means of music, as the Jerusalem Temple used to supply; and Hebrew poetic feeling was not limited to the writers of the inspired hymns and prophecies now in our possession, for David, Isaiah, and Jeremiah, did not invent, but use, under Divine inspiration, the rules of art already existing.

Have not all of us observed the costumes of the Bethlehem peasantry, both male and female, with simple masses of rich red and blue colour? How exactly they accord with the paintings of the old Italian masters. One might imagine that Correggio and Raffaelle drew and coloured from dresses of the groups, or individual persons, that we meet any day upon the road from Jerusalem to Bethlehem, persons whom we might address by name. This seems only to be accounted for on the supposition that coloured sketches were forwarded or carried to Italy, by monks or pilgrims, on their return to Europe."

England's Mineral Wealth.—On the authority of Mr. R. Hunt, the Government Keeper of Mineral Records, according to the *Mining Journal*, the following statement is regarded as a near approximation towards the annual value of our mineral wealth:—**Coal**, as raised at the pit's mouth, 11,000,000*l.*; iron, 10,000,000*l.*; copper, 1,500,000*l.*; lead, 1,000,000*l.*; tin, 400,000*l.*; silver, 210,000*l.*; zinc, 10,000*l.*; salt, clays, &c., 500,000*l.*; giving the enormous total of 24,620,000*l.* This is the value of the raw material. When the cost of labour employed in converting this mass of matter into articles of utility or objects of ornaments is added, it will be swelled a hundredfold.

Notices of Books.

Every Man his own Printer; or, Lithography made Easy. Waterlow and Sons, London-wall. 1854.

This is an Essay on Lithography in all its branches, showing more particularly, however, the advantages of "The Patent Autographic Press," a substitute for, or improvement on, Watt's Copying Machine, enabling all, but especially mercantile and other firms, draughtsmen, teachers, music-sellers, and others to multiply copies of writings, drawings, notations, diagrams, &c. *ad infinitum*. The patent, in fact, is just an adaptation of lithography to the copying machine essentially speaking, although copper-plates, as well as lithographic stones, and even types can be worked readily by means of the "Autographic Press," which seems to be a very useful invention, although hardly justifying such a title as "Every man his own Printer," for the whole tribe of *authors* may be said to be excluded from its use, unless they are satisfied to print their works in single pages, and in autographic or at least lithographic characters. The capability of using types is admittedly very restricted. We will venture to suggest an additional step towards enabling poor authors really to act as their own printers, however. Might not a press on the principle of the copying machine be made of sufficient size to enable a small sheet to be printed from, by means of gutta percha stereotypes, prepared from gutta percha matrices, stamped from types set in form, on the apparently very effective and simple plan exhibited at the Crystal Palace of 1851? If so, then it is evident that such a copying machine, or printing press, together with paper, an inking roller, and as many types as would merely enable the poor author to set up even a single small page of his proposed work would be sufficient to set him up as his own printer, so soon as he could accumulate as much gutta-percha, in the form of stereotypes, taken from each page of the types as he set them up, as would enable him to print off a sheet or volume, both types and matrix, so soon as each stereotype was got, being ready to assume the new form of the following page. Should any patent-eater or patent-hunter think of appropriating this suggestion, in the way that so many of the thousand-and-one suggestions of the *Builder* have already been, and yet will be appropriated, it is to be hoped he will at least do us the honour, which so few do us, of acknowledging the source of his second-hand inspiration, and of citing number and page, while he is about it, so as to save us the endless trouble of hunting through our own teeming columns for the registry of the actual birth of *his* (adopted) "invention."

Miscellanea.

Metropolitan Bridges and Roads.—On the motion of Mr. Jackson, the House of Commons has appointed a select committee to inquire into the state and condition of the several communications to and in the metropolis, including the bridges over the Thames and the approaches thereto; to report whether the communications and approaches are adequate to the present and increasing traffic to and in the metropolis; if not, the best mode of improving the same, and whether it will be desirable to have one or more bridges over the Thames, and where, and the best mode, out of local fund, of providing the cost of such bridges, and of improving the said communications and approaches, and throwing open to the public the toll-paying bridges.——In reply to Mr. Oliveira, who asked the First Commissioner of Works, whether it was the intention of her Majesty's Government, during the present session, to take any steps in reference to the report of the select committee of the last session on metropolitan bridges, Sir William Molesworth said, the Board of Works did not possess any funds with which to execute the works pointed out in the report of the committee on metropolitan bridges; nor was it the intention of the Government to apply to Parliament for a grant of public money for that purpose. But his hon. friend the President of the Board of Health intended to ask leave to introduce a measure for the better local government of the metropolis, which Bill would contain a clause which would enable local metropolitan boards to provide funds for carrying out public works of this nature.

THE IRON TRADE.—Reductions in wages are being quietly submitted to by the workmen in this trade, and prices are being "ruled by circumstances." At the death of the Czar Nicholas pigs rose, it is said, 3*s.* in Scotland. The ironmasters are now complaining of the combination of the coalmasters, *suo more*, to keep up prices. The Cleveland district iron is getting into all the Yorkshire and Derbyshire markets, and must soon, it is thought, still further reduce the value of the article. More failures in the trade are still talked of as probable. America is coming slowly into our markets again since prices fell, and the steel trade is becoming more active in consequence.

WARMING CHURCHES.—In the dark ages (rightly so called, because little is known about them), the daily services with its incense and lights, and the lamps burnt continually before shrines, were found sufficient to warm the interior of churches; but in these days of close-fitting, draught-excluding windows, more complete means of heating our places of worship are required, yet the necessity for this seems to be disregarded, by the absence of all provision for an adequate, or, indeed, any warming apparatus, in the majority of new churches; consequently the same plan is often resorted to which obtains in most churches erected in times long past, viz. the placing on the floor of the building stoves, each with an elbow of iron-piping passing through the tracery of a window. Now, this disfigurement would be altogether avoided were fireplaces and chimneys considered allowable features in the structure of a church: they might be rendered an adornment rather than otherwise. Taste is much, if not altogether, regulated—or, at least, is much influenced, by what we are accustomed to; and if the eye were rendered familiar with the appearance of two or more recesses in the walls of a church, lined and paved with encaustic tiles, containing moveable grates with brass guards as protection from fire, we should soon consider any church incomplete unless it were so furnished. Chimneys on the exterior somewhat resembling buttresses would scarcely be eyesores; indeed, they might, without dishonesty, serve two purposes, provided the architect sought not to conceal the chimney in the buttress, nor placed his chimney buttress where a buttress is not needed. If a smoke-consuming invention were used for the grate, the top of the chimney would not be much blackened: in towns a "gas-fire" might be advantageously used. The heating power, if thus placed in close connection with the cooling-surfaces of the walls and windows, would probably counteract in some measure the currents of cold air so continually complained of by those who sit near a window.—W. S. MEADE.

HOUSES FOR THE POOR.—In your journal of the 3rd inst. your Birmingham correspondent, in speaking of the sufferings of the bricklayers, labourers, &c. inquires, "When will they renounce the baneful influence of the pot-house and learn self-respect?" I, who know much of them from thirty years' experience, would answer this question, by saying that it will never take place until they are provided with decent and cleanly homes, and their children are reared in wholesome dwellings, and a young mechanic can take to his wife a virtuous young woman, without fear of her becoming a slattern or a drunkard, from the contamination which at present she is sure to be surrounded with in the courts and alleys the labouring man is forced to reside in. The wretched lodgings of the poor are the cause of more than half the misery now existing. It is of no use preaching religion, or making education cheap, or founding ragged schools, while the present state of things in this respect exists. Give to the poor man a cleanly and cheerful home at a price his means will bear, and then order and sobriety will ensue. If this cannot be brought about by private enterprise, let it be done by parochial boards, and the rental collected by parish authorities,—it would save the trouble of collecting poor-rates. If masses of lodging-houses fitted for the poor were built now, in twenty-five years an entire change would appear among the working population, and religion and education would be honoured and reverenced by those who are now known as the *unwashed*. Notwithstanding the blessings which baths and wash-houses have conferred, the poor cannot be clean while they have the abodes you have so frequently illustrated and so fervently condemned. The thousand dens of iniquity you have pointed out ought to be broken up as speedily as masses of new dwellings could be erected. No class of society pay, in proportion to their incomes, such high rents as the poor,—I include all ranks of poor—clerk, mechanic, and labourer,—and none pay so much for warmth or for cooking of their food. Some persons may say that in doing this you strike at the root of self-independence. I deny this: you will, on the contrary, engender habits of order that will prompt ambition to more lucrative positions in society, and diminish the morbid feeling existing in favour of distant lands, which is carrying away the bone and sinew of the country.—Δ.

THE PARIS EXHIBITION OF INTERNATIONAL INDUSTRY AND ART.—The London commissioners of metropolitan sewers intend, at the request of the Board of Trade, to see what can be done by them in the way of sending sewage plans and models to the great Paris exhibition.——The Sunderland contingent has been exhibited at home before being despatched to its destination. It will constitute a highly respectable portion of the general display. There are numerous complete models of the chief manufacture of Sunderland, namely, shipping, among which we notice the *Empress Eugenie* herself: these are all suspended in glass cylinders, provided by Mr. Hartley, and, with a great, case have a novel and imposing appearance. Glass is separately illustrated by Messrs. Hartley's firm. Architecture takes its place in a series of perspective drawings of public works sent by Mr. Oliver. There are various choice specimens of ship carving, and of course of coal, as well as a large model of a coal-pit, with Davy lamps, &c.; besides a large quantity of miscellaneous articles.——A granite dial pedestal has been ordered, on account of the Prince of Wales, to be prepared by the Cheesewring Granite Company, whose granite quarries are on the property of the prince, as duke of Cornwall. This company, by the way, is sending immense blocks of their fine granite to the new Westminster-bridge works, where they may be seen on the contractor's wharfs.

SOUTHAMPTON DRAINAGE.—A report, by Mr. James Simpson, the president of the Institution of Civil Engineers, London, "On the intended Sewageometer, and the Sites suggested for erecting the same," has been published, by order of the local Board of Health. Several statistical tables and reports on the rain-fall are appended. The principal object of the "sewageometer," or iron air-tight tank, alluded to, seems to be to retain the sewage for a short period, and prevent it from flowing into the river about the time of high-water. It was proposed to form it above ground, but Mr. Simpson states that such a purpose would be better effected by reservoirs underground at the outfall. As to projected works for the application of the sewage to agricultural purposes, the reporter questions the propriety of expending capital for such a purpose, or at least with the idea that it would be remunerative for some years to come, and especially in any other than private hands.

REMEDY FOR DOWN-DRAUGHT.—In reply to your correspondent of the 24th ult. who asks for a remedy for down-draught, I beg to suggest that he should try the following, which I have found successful. It is simply to suspend a curtain in front of the fireplace down which the smoke comes, extending from the top of the opening to about *four inches from the ground*. Care should be taken that the curtain fits closely, so as to leave no opening at the top or sides. If the curtain extends to the ground it fails to answer the purpose. An old cloth and a couple of sticks to prop it up will enable anybody to try the experiment, and if it answers, a more permanent substitute may be found.—J. B. B.

RED BRICKS IN OLD BUILDINGS.—Your correspondent, "Red Rubber," in your journal of February 17, is right in his surmise as to where some of the red rubbers used in many of the old buildings in London were obtained. They are still manufactured at the Nonsuch Works, Ewell, Surrey; also the red fire-bricks, termed Nonsuch Fire-bricks, mentioned by him, which are used for copper smelting works, chemical works, gas works, and other purposes where a very intense heat is required. But your correspondent is wrong in his supposition that the same clay (a "marly loam with sand") was used in the manufacture of both kinds of bricks. The fire-brick at the above-named works is made from a vein of earth more resembling sand, from 9 to 12 inches in depth, deposited below a peculiar bed of red clay, whilst the red rubbers are manufactured from a lower stratum—a species of green loam, from 18 to 24 inches in depth, producing bricks of a rich deep red colour. A specimen of these may be seen in the archway recently erected, forming the entrance to the Necropolis Company's Station, in the Westminster-road; and they will be used in the new works at the Small-arm Factory, Enfield-lock. Your correspondent is quite right as to their not containing any chalk, or carbonate of lime.—J. EASTWOOD and SONS.

WREN.—At Puttock and Simpson's, Auctioneers, Piccadilly, next Tuesday, Lots 478, 479, will be sold, Letters and Signatures of Sir C. Wren, and following day Lot 545, "Sir C. Wren, Pen Sketches, with written explanations, of a proposed English Walhalla, two leaves, small folio, covered on both sides, *very interesting and rare*." This appears to me to have been the original design for the proposed monument of Charles I. intended for erection in the neighbourhood of Windsor Castle, for which the parliament voted 70,000*l.*; used for other purposes by Charles II. I believe mention is made of this in the "Parentalia."

CONSTANT READER.

A HOUSE OF BUTTONS.—The *Atlas's* Paris correspondent states that Clapisson, the musical celebrity, is building a chateau composed entirely of buttons! The walls, the ceiling, the doors, the exterior, the interior, are all ornamented with this novel element of architecture. Buttons of every description, from the very origin of their invention up to those of the present day, have been employed in the arabesques and ornamentation of the walls. Every country has been ransacked, and some curious specimens have been brought to light. Those dating from the lower Greek Empire are of the most curious manufacture.

RAILWAYS IN CANADA.—In the *Canadian Journal*, a repertory of industry, science, and art (published by Maclear and Co. Toronto, for the Canadian Institute), is a recent statistical article on railways in Canada, from which it appears that the number of railways now in course of construction in the province is 32, with 1,193 miles completed, and 2,022 more or less advanced, besides "a vast number of miles of road not yet commenced." The number of companies who have not as yet begun to lay down any length of way is 14. The number of companies whose charters have expired from "non user" is 10. The total number of charters granted is 56. Under railway influence the forests, at the head of the Androscoggin and Connecticut rivers, have been quadrupled in value in the last four years, and a similar result is found along the streams of Canada in the vicinity of the lines. Half a million feet of lumber was moved on the Grand Trunk Line in one week in July last, and in another year it is expected that the average per week will be a million feet.

BRISTOL FINE ART ACADEMY.—At a meeting on Monday before last of the artist members of the Bristol Academy for the promotion of the fine arts it was resolved that an exhibition, consisting exclusively of productions of local talent, should be opened early in May, at the Academy-rooms in St. Augustine's-parade.

TELEGRAPHIC PROGRESS.—TELEGRAPHING WITHOUT WIRES!—Among the most startling wonders of this wonder-working age, is the announcement that M. Bonelli, of Turin, has invented a new electric or magnetic telegraph, by which trains in motion on a railway are enabled to communicate with each other at all rates of velocity, and, at the same time, with the telegraphic stations on the line, while the latter are simultaneously able to communicate with the trains; and it is added, that M. Bonelli is in possession of a system of telegraphic communication by which wires are entirely dispensed with. The idea, however, is not new: we have repeatedly alluded to its possibility; but like multitudes of such ideas the suggestion drops into oblivion, and reappears after a while as a fresh novelty. Who was its real originator we do not know, but the nearest approximation to its practical realization we remember anything of was the mode by which a Dundee gentleman transmitted messages across rivers and straits without any intervening or subaqueous wire. Still wire was necessary, and a good long coil too, at either extremity of the space telegraphed through.

STYLE.—When, at last, Art, by means of imitation of Nature, of efforts to create a common language, and of clear and profound study of objects themselves, has acquired a clearer and clearer knowledge of the peculiarities of objects and their mode of being, oversees the classes of forms, and knows how to connect and imitate those that are distinct and characteristic, then will style reach the highest point it is capable of—the point where it may be placed on a par with the highest efforts of the human mind. Simple imitation springs from quiet existence and an agreeable subject. Manner seizes with facile capacity upon an appearance. Style rests upon the deepest foundations of knowledge, upon the essence of things, so far as we are able to recognise it in visible and comprehensible forms.—*Goethe.*

BAVARIAN BRICKS.—When, for the second time, I was last summer in Munich, none of the many fine brick buildings with which that city abounds appeared to me more worthy of admiration than the imposing structures recently erected, particularly "the Royal Library" and "the Wittelsbach Palace," which are built entirely of brick, "that common material which we are accustomed to consider somewhat beneath the dignity of architecture as a fine art" (p. 98, *ante*). I have visited many of the first cities on the continent, including Paris, Vienna, and Berlin, but, unfortunately for myself, have seen very little of my own country—or I will not deny that I might have seen much good and substantial brickwork; but I am afraid none so really beautiful as the Bavarian. Even now, all that I can say of the Munich bricks, is, that they are of a pretty colour—not red—and that they seem to be exquisitely put together, as my stay in that city was too short to permit of my making such inquiries as I could have wished to make.

J. F.